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NUCLEAR REGULATORY COMMISSION

10 CFR Parts 2, 51, and 54

RIN 3150-AF05

Nuclear Power Plant License Renewal; Proposed Revisions

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its regulations to change the requirements that an applicant for renewal of a nuclear power plant operating license must meet, clarify the required information that must be submitted to the NRC for review so that the agency can determine whether those requirements have in fact been met, and change the administrative requirements that a holder of a renewed license must meet. The proposed amendments are intended to provide a more stable and predictable regulatory process for license renewal. This proposed rule would inform nuclear power plant licensees and interested members of the public of the proposed changes to the regulatory requirements for extending nuclear power plant operating licenses beyond 40 years.

DATES: Submit comments by December 8, 1994. Comments received after this date will be considered if it is practical to do so, but the Commission is able only to ensure consideration for comments received on or before this date.

ADDRESSES: Send comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

Deliver comments to: One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852, between 7:45 am and 4:15 pm Federal workdays.

Copies of comments received may be examined at: NRC Public Document Room, 2120 L Street N.W. (lower level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Thomas G. Hiltz, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone: (301) 504-1105.

SUPPLEMENTARY INFORMATION:

clarification of the two principles of license renewal.
    c. Systems, structures, and components within the scope of license renewal.
    d. The regulatory process and aging management.
    e. Current licensing basis and maintaining the function of systems, structures, and components.
    f. Integrated plant assessment.
    g. Time-limited aging analyses and exemptions.
    h. Standards for issuance of a renewed license and the scope of hearings.
    i. Regulatory and administrative controls.
IV. Availability of Documents.
V. Questions.
VI. Finding of No Significant Environmental Impact: Availability.
VII. Paperwork Reduction Act Statement.
VIII. Regulatory Analysis.
IX. Regulatory Flexibility Act Certification.
X. Non-Applicability of the Backfit Rule.

I. Background

    The license renewal rule (10 CFR Part 54) was adopted by the Commission on December 13, 1991 (56 FR 64943). This rule established the procedures, criteria, and standards governing the renewal of nuclear power plant operating licenses.
    Since publishing the license renewal rule, the staff of the NRC has conducted various activities related to implementing this rule, including developing a draft regulatory guide and a draft standard review plan for license renewal, interacting with lead plant licensees, and reviewing generic industry technical reports sponsored by the Nuclear Management and Resources Council (now part of the Nuclear Energy Institute).
    In November 1992, the law firm of Shaw, Pittman, Potts, and Trowbridge submitted a paper to the NRC that presented Northern States Power Company's perspectives on the license renewal process. The paper included specific recommendations for making the license renewal process more workable. In addition, industry representatives provided the Commission with views on several key license renewal implementation issues. In late 1992, the NRC staff conducted a senior management review and interacted with the Commission, industry groups, and individual licensees to discuss key license renewal issues. The NRC staff discussed its recommendations regarding several of these key license renewal issues in two recent Commission policy papers (SECY-93-049, ``Implementation of 10 CFR Part 54, `Requirements for Renewal of Operating Licenses for Nuclear Power Plants,''' and SECY-93-113, ``Additional Implementation Information for 10 CFR Part 54, `Requirements for Renewal of Operating Licenses for Nuclear Power Plants''').
    In its staff requirements memorandum (SRM) of June 28, 1993, the Commission indicated that a predictable and stable regulatory process that defines the Commission's expectations for license renewal in a clear and unequivocal way is essential. This would permit licensees to make decisions about license renewal without these decisions being influenced by a regulatory process that is perceived to be uncertain, unstable, or not clearly defined. The Commission directed the NRC staff to convene a public workshop to evaluate alternative approaches for license renewal that best take advantage of existing licensee activities and programs as a basis for concluding that aging will be addressed in an acceptable manner during the period of extended operation. In particular, the Commission directed the NRC staff to

examine the extent to which greater reliance can be placed on the maintenance rule (10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants) as a basis for concluding that the effects of aging will be effectively managed during the license renewal term.

On September 30, 1993, the NRC staff conducted a public workshop in Bethesda, Maryland, that was attended by over 180 representatives from nuclear utilities, industry organizations, architect and engineering firms, consultants and contractors, and Federal and State governments. In December 1993, the NRC staff forwarded SECY-93-331, ``License Renewal Workshop Results and Staff Proposals for Revision to 10 CFR Part 54, `Requirements for Renewal of Operating Licenses for Nuclear Power Plants,''' to the Commission. The NRC staff recommended that the Commission direct it to amend 10 CFR Part 54 to establish a more stable and predictable license renewal process.

In its SRM of February 3, 1994, the Commission agreed with the NRC staff's conceptual approach in SECY-93-331 for performing license renewal reviews and directed the staff to proceed with rulemaking to amend 10 CFR Part 54. The Commission believes that the license renewal process should focus on the management of the effects of aging on certain systems, structures, and components during the period of extended operation. An objective for the proposed amendment is to establish a more stable and predictable license renewal process that identifies certain systems, structures, and components<SUP>1 that require review to provide the necessary assurance that these systems, structures, and components will continue to perform their intended function for the period of extended operation.

\1\Throughout the Statement of Considerations, the phrases systems, structures, and components and structures and components are used. As a matter of clarification, the Commission intends that the phrase systems, structures, and components applies to the matters involving the discussions of the overall renewal review, the specific license renewal scope (Sec. 54.4), time-limited aging analyses (Sec. 54.21(c)), and the license renewal finding (Sec. 54.29). The phrase structures and components applies to matters involving the integrated plant assessment (IPA) required by Sec. 54.21(c) because the aging management review required within the IPA should be a component and structure level review rather than a more general system level review. The phrase systems, structures, and components applies to the evaluation of time-limited aging analyses required by Sec. 54.21(c) because such plant-specific analyses may have been carried out, for the initial operating term, for either systems, structures, or components. Reevaluation for the renewal term is intended to focus on the same systems, structures, or components subject to the initial term time-limited aging analyses. The finding required by Sec. 54.29 considers both the results of the integrated plant assessment and the time-limited aging analyses and, therefore, the phrase system, structures, and components is applicable to this section.

II. Proposed Action

The proposed rule would revise certain requirements contained in 10 CFR Part 54 and establish a regulatory process that is simpler, more stable, and more predictable than the current license renewal rule. The proposed rule would continue to ensure that continued operation beyond the term of the original operating license will not be inimical to the

public health and safety. The more significant proposed changes to the license renewal rule are as follows:

(1) The intent of the license renewal review would be clarified to focus on the adverse effects of aging rather than identification of all aging mechanisms. This change would emphasize that the rule is intended to ensure that important systems, structures, and components will continue to perform their intended function in the period of extended operation. Identification of individual aging mechanisms would not be required as part of the renewal review. The definitions of age-related degradation, age-related degradation unique to license renewal, aging mechanisms, renewal term, and effective program would be deleted.

(2) The definition of integrated plant assessment (IPA) (Sec. 54.3) and the IPA process (Sec. 54.21(a)) would be clarified to be consistent with the revised focus in item (1) on the detrimental effects of aging.

(3) A new Sec. 54.4 would be added to replace the current definition of systems, structures, and components ``important to license renewal'' in Sec. 54.3. Section 54.4 would define those systems, structures, and components within the scope of the license renewal rule and would identify the important functions (intended functions) of the systems, structures, and components that must be maintained. The requirement to include systems, structures, and components that have limiting conditions for operation in facility technical specifications within the scope of license renewal has been deleted.

(4) In Sec. 54.21(a), the IPA process would be simplified. The wording would be changed to resolve any ambiguity associated with the use of the terms systems, structures, and components (SSCs) and structures and components (SCs). A simplified methodology for determining whether a structure or component requires an aging management review for license renewal would be delineated. Only long-lived, passive structures and components would be subject to an aging management review for license renewal. Sections 54.21(b) and (d) of the current rule would be deleted, and a new Sec. 54.21(c) dealing with time-limited analyses and a new Sec. 54.21(d) dealing with final safety analysis report (FSAR) supplement requirements would be added. The requirement to review any relief from codes and standards contained in Sec. 54.21(c) of the current rule would be deleted, and the requirement to review exemptions from regulatory requirements contained in Sec. 54.21(c) of the current rule would be clarified and linked with the time-limited analyses.

(5) In Sec. 54.22, the requirement to include technical specification changes in the FSAR supplement would be clarified consistent with the revised focus on the detrimental effects of aging.

(6) In Sec. 54.29, the standards for issuance of a renewed license would be changed to reflect the revised focus on the detrimental effects of aging concerning structures and components requiring an aging management review for license renewal and any time-limited issues (including exemptions) applicable for the renewal term. A new paragraph (b) would be added to separate those issues identified during the license renewal process that require resolution during the current license term from those issues that require resolution during the license renewal process.

(7) In Sec. 54.33, requirements for continuation of the current licensing basis (CLB) and conditions of renewed licenses would be changed to delete all reference to age-related degradation unique to license renewal (ARDUTLR). Section 54.33(d) of the current rule, which requires a specific change control process, would be deleted.

(8) In Sec. 54.37, additional records and recordkeeping requirements would be changed to be less prescriptive. Section 54.37(c) would be deleted.

A set of questions, which is included in Section V of this statement of considerations (SOC), identifies certain issues considered in the development of the proposed rule for which the Commission is soliciting additional information from members of the public.

III. Principal Issues

a. Continued Validity of Certain Findings in Previous Rulemaking

The purpose of this proposed rule is to simplify and clarify the current license renewal rule. As such, it is a narrowly circumscribed rulemaking. Unless otherwise clarified or reevaluated, either directly or indirectly, in the discussion for this proposed rule, the conclusions in the SOC for the current license renewal rule remain valid (56 FR 64943; December 13, 1991). Therefore, if any conflicts arise between discussions in the SOC for the December 13, 1991, license renewal rule and discussions in the justification for this proposed rule that follow, the intent discussed in the justification for this proposed rule should take precedent.

b. Reaffirmation of the Regulatory Philosophy and Approach and Clarification of the Two Principles of License Renewal

(i) Regulatory Philosophy

In developing the current license renewal rule, the Commission concluded that issues that are material to renewal of a nuclear power plant operating license are to be confined to those issues that the Commission determines are uniquely relevant to protecting the public health and safety and preserving common defense and security during the period of extended operation. Other issues would, by definition, have a relevance to the safety and security of the public during current plant operation. Given the Commission's ongoing obligation to oversee the safety and security of operating reactors, issues that are relevant to current plant operation will be addressed within the present license term rather than deferred until the time of license renewal. Consequently, the Commission formulated the following two principles of license renewal.

The first principle of license renewal was that, with the exception of age-related degradation unique to license renewal and possibly some few other issues related to safety only during extended operation of nuclear power plants, the regulatory process is adequate to ensure that the licensing bases of all currently operating plants provide and maintain an acceptable level of safety so that operation will not be inimical to public health and safety or common defense and security. Moreover, consideration of the range of issues relevant only to extended operation led the Commission to conclude that the detrimental effects of aging is probably the only issue generally applicable to all plants. As a result, continuing this regulatory process in the future will ensure that this principle remains valid during any period of extended operation if the regulatory process is modified to address age-related degradation that is of unique relevance to license renewal. Consequently, the current license renewal rule focuses the Commission's review on this one safety issue. Under the current rule, the Commission may address any other safety issue unique to the period of extended operation.

The second and equally important principle of license renewal holds that the plant-specific licensing basis must be maintained during the renewal term in the same manner and to the same extent as during the original licensing term. This principle would be accomplished, in part, through a program of age-related degradation management for systems,

structures, and components that are important to license renewal as defined in the current rule.

The Commission continues its fundamental support for these principles. In particular, the Commission still believes that mitigation of the deleterious effects of aging resulting from operation beyond the initial license term should be the focus for license renewal. After further consideration and experience in implementing the current rule, the Commission has, however, determined that the requirements for carrying out the license renewal review can and should be simplified and clarified. The Commission has concluded that, for certain plant systems, structures, and components, the existing regulatory process will continue to mitigate the effects of aging to provide an acceptable level of safety in the period of extended operation.

The Commission now believes that it can generically exclude from the IPA aging management review for license renewal (1) those structures and components which perform active functions and (2) structures and components subject to replacement based on qualified life or specified time period. However, all systems, structures, and components subject to time-limited aging analyses would be subject to a license renewal evaluation. The objective of a license renewal review is to determine whether the detrimental effects of aging could adversely affect the functionality of systems, structures, and components that the Commission determines require review for the period of extended operation. The license renewal review is intended to identify any additional actions that will be needed to maintain the functionality of these systems, structures, and components in the period of extended operation. Detailed discussions concerning determination of those systems, structures, and components requiring a license renewal review are contained in Section III.c of this SOC; detailed discussions of those structures and components subject to an aging management review are in Section III.f of this SOC; and, detailed discussions on systems, structures, and components requiring a license renewal evaluation are contained in Section III.g of this SOC.

Accordingly, this proposed rule focuses the license renewal review on certain systems, structures, and components that the Commission has determined require evaluation to ensure that the effects of aging will be managed adequately in the period of extended operation. This change is viewed as a modification consistent with the first principle of license renewal established in the current rule. In view of this proposed rule, the first principle can be revised to state that, with the possible exception of the detrimental effects of aging on the functionality of certain plant systems, structures, and components in the period of extended operation and possibly some other issues related to safety only during extended operation, the regulatory process is adequate to ensure that the licensing bases of all currently operating plants provide and maintain an acceptable level of safety so that operation will not be inimical to public health and safety or common defense and security.

(ii) Deletion of the Term ``Age-Related Degradation Unique to License Renewal''

The use of the term ``age-related degradation unique to license renewal'' (ARDUTLR) has caused significant uncertainty. A key problem involves how unique aging issues are to be identified and, in particular, how existing licensee activities and Commission regulatory activities are to be considered in the identification of systems, structures, and components as either subject to or not subject to ARDUTLR. The difficulty in clearly establishing ``uniqueness'' in connection with the effects of aging is underscored by the fact that aging is a continuing process, the fact that many licensee programs and

regulatory activities are already focused on mitigating the effects of aging to ensure safety in the current operating term of the plant, and the fact that no new aging phenomena have been identified as potentially occurring only during the period of extended operation.

The proposed rule would eliminate both the definition of ARDUTLR and use of the term in codified regulatory text. Confusion regarding the detailed definition of ARDUTLR in the rule and questions regarding which structures and components could be subject to ARDUTLR would be eliminated. Specifically, the proposed rule would focus on ensuring that the effects of aging in the period of extended operation are adequately managed.

Under the current rule, time-limited aging analyses applicable to systems, structures, and components important to license renewal that were based either on an explicitly assumed service life or defined by the current license term and were the basis for a safety analysis, are considered subject to ARDUTLR. Because the proposed amendment would delete the definition of ``ARDUTLR,'' the proposed rule would explicitly identify time-limited aging analyses as requiring evaluation as part of the renewal process. Time-limited aging issues are discussed further in Section III.g of this SOC.

c. Systems, Structures, and Components Within the Scope of License Renewal

(i) Scope of the License Renewal Review and Elimination of the Technical Specification Limiting Conditions for Operation Scoping Category

In the proposed rule, the Commission has deleted the definition (in Sec. 54.3) of systems, structures, and components important to license renewal and proposes to replace it with a new section entitled Sec. 54.4 Scope. This new section will continue to define the set of plant systems, structures, and components that would be the initial focus of a license renewal review. From this set of systems, structures, and components, a license renewal applicant will determine those systems, structures, and components that would require review for license renewal. The intent of the definition of systems, structures, and components important to license renewal (i.e., to initially focus the review on important systems, structures, and components) remains intact in the proposed Sec. 54.4.

In the Statements of Consideration for the current license renewal rule, the Commission concluded that applicants for license renewal should focus on the management of aging for those systems, structures, and components that are of principal importance to the safety of the plant. The Commission also believed that the focus of an aging evaluation for license renewal cannot be limited to only those systems, structures, and components that the Commission has traditionally defined as safety-related. Therefore, the Commission determined that, in order to ensure the continued safe operation of the plant during the renewal term, (1) safety-related systems, structures, and components, (2) nonsafety-related systems, structures, and components that directly support the function of a safety-related system, structure, or component or whose failure could prevent the performance of a required function of a safety-related system, structure, or component, (3) systems, structures, and components relied upon to meet a specific set of Commission regulations, and (4) systems, structures, and components subject to the operability requirements contained in the facility technical specification limiting conditions for operation should be the initial focus of the license renewal review.

Since publishing the final rule, the Commission has gained considerable pre-application rule implementation experience and gained

a better understanding of aging management, in part, through the development of a regulatory guide to implement the maintenance rule, 10 CFR 50.65. The Commission now believes that (1) by appropriately crediting existing licensee programs that manage the effects of aging and (2) by appropriately crediting the continuing regulatory process, it can more narrowly define those systems, structures, and components within the scope of license renewal and more narrowly focus the license renewal review.

The Commission continues to believe that the initial scoping for the license renewal review should not be limited to only those systems, structures, or components that the Commission has traditionally defined as safety-related. However, the Commission proposes that the requirement to consider additional systems, structures, and components subject to the operability requirements contained in the facility technical specification limiting conditions for operation be deleted and not included in this new scope section; the other three categories would not be changed.

The first two categories of systems, structures, and components discussed in the proposed new scoping section (54.4(a)(1) and (a)(2)) are the same categories defined in the current definition of systems, structures, and components important to license renewal. These scoping categories concern (1) all safety-related systems, structures, and components and (2) all non-safety related systems, structures, and components that support the function of a safety-related system, structure, or component or whose failure could prevent a safety-related system, structure, or component from satisfactorily fulfilling its intended function(s). These two categories are meant to capture, as a minimum, automatic reactor shutdown systems, engineered safety feature systems, systems required for safe shutdown (achieve and maintain the reactor in a safe shutdown condition), and non-safety systems such as auxiliary systems necessary for the function of safety systems.

The third category of systems, structures, and components discussed in the proposed new scoping section (54.4(a)(3)) are those systems, structures, and components whose functionality may be relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for 10 CFR 50.48 (Fire Protection), 10 CFR 50.49 (Environmental Qualification), 10 CFR 50.61 (Pressurized Thermal Shock), 10 CFR 50.62 (Anticipated Transients Without Scram), and 10 CFR 50.63 (Station Blackout). This category is also specified in the current definition of systems, structures, and components important to license renewal and includes those systems, structures, and components relied upon to meet certain regulations and was developed to ensure that important systems, structures, and components which may be considered outside the traditional definition of safety-related, and outside of the first two categories in Sec. 54.4, would be included within the initial focus of license renewal. Through evaluation of industry operating experience and through continuing regulatory analysis, the Commission has reaffirmed that systems, structures, and components required to comply with these regulations are important to safe plant operation because they provide substantial additional protection to the public health and safety or are an important element in providing adequate protection to the public health and safety; therefore, the Commission concludes that these systems, structures, and components should be included as part of the initial scope of the license renewal review.

In the current license renewal rule, the Commission established a fourth category of systems, structures, and components to be the focus of the initial license renewal review. In this category, the Commission included all systems, structures, and components that have operability requirements in the plant technical specifications limiting conditions

for operation. As defined in Standard Technical Specifications, ``a system, subsystem, train, component, or device shall be operable when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).'' This was intended to include (1) all systems, structures, and components specifically identified in the technical specification limiting conditions for operation, (2) any system, structure or component for which a functional requirement is specifically identified in the technical specification limiting conditions for operation, and (3) any necessary supporting system, structure or component that must be operable or have operability in order for a required system, structure, or component to be operable.

The Commission previously considered the technical specification limiting conditions for operation scoping category to be consistent with the Commission's intent to not re-examine the entire plant for license renewal but to ensure that all systems, structures, and components of principal importance to safe plant operation were identified and evaluated. However, existing technical specifications for many plants have functional requirements on certain systems, structures, and components with low or indirect safety significance. For example, limiting conditions for operation are frequently included in technical specifications for plant meteorological monitoring instrumentation, solid and liquid radioactive waste treatment systems, and traversing incore probes. These requirements, while important for certain aspects of power plant operation, have little or no direct bearing on protection of public health and safety. Applying the first three categories (54.4(a)(1), (2), and (3)) results in the majority of systems, structures, and components that would be captured into the license renewal scope when applying the technical specification category. The technical specification category only adds non-safety systems, structures, and components that do not support safety related systems, structures, and components and consequently should not be the subject of license renewal. Pre-application rule implementation experience has indicated that this category of systems, structures, and components as defined in the current rule could lead to an unwarranted re-examination of plant systems, structures, and components that are not of principal importance.

In its ``Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors'' (58 FR 39132), the Commission identified four criteria for defining the scope of improved technical specifications. The four criteria are as follows:

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

Nuclear power plant licensees that voluntarily choose to

``improve'' their technical specifications based on this Commission policy may submit changes to the Commission for review and approval that will remove systems, structures, and components from their technical specifications prior to conducting license renewal. (Experience shows that approximately 40 percent of limiting conditions for operation and surveillance requirements could be deleted).

While it is not the Commission's intent to require applicants for license renewal to ``improve'' their technical specifications, it remains the intent of the Commission to focus the license renewal review on those systems, structures, and components that are of principal importance to safety. Therefore, a license renewal scoping category that requires wholesale consideration of systems, structures, and components within the scope of technical specifications (that may not be improved) may not appropriately focus licensee and NRC resources on those systems, structures, and components that are of principal importance to safety.

After considering the substantial overlap between the four criteria for defining the scope of technical specifications and the first three scoping categories for license renewal, the Commission has generically concluded that the number of additional systems, structures, and components that would be considered as a result of applying the technical specification scoping category to improved technical specifications is small. These additional systems, structures, and components most likely would result from differences in each plant's current licensing basis and from the application of these criteria and categories on a plant-specific bases.

The Commission cannot make generic conclusions in this rulemaking about these additional systems, structures, and components regarding the appropriateness of whether they should be included in an individual plant's technical specifications. However, the Commission can conclude that these additional systems, structures, and components are of a relatively lower safety significance because they are, by exclusion, nonsafety-related systems, structures, and components whose failure cannot prevent the performance or reduce the availability of a safety-related system, structure, or component. Additionally, the Commission believes that the current regulatory process for these additional nonsafety-related systems, structures, and components is adequate to ensure that age degradation will not result in a loss of functionality in accordance with the CLB. Moreover, these additional nonsafety-related systems, structures, and components should be within the scope of the maintenance rule (Sec. 50.65).

The Commission believes that there is sufficient experience with its policy on technical specifications to apply it generically in revising the license renewal rule consistent with the Commission's desire to credit existing regulatory programs. Therefore, the Commission has concluded that the technical specification limiting conditions for operation scoping category is unwarranted and proposes to delete the requirement that identifies systems, structures, and components with operability requirements in technical specifications as being within the scope of the license renewal review.

(ii) Intended Function

The current license renewal rule requires an applicant for license renewal to identify from the systems, structures, and components important to license renewal those structures and components that contribute to the performance of a ``required function'' or could, if they fail, prevent systems, structures, and components from performing a ``required function.'' This requirement initially posed some difficulty in conducting pre-application reviews of proposed scoping methodologies because it was not clear what was meant by ``required function.'' Most systems, structures, and components have more than one

function and each could be regarded as ``required.'' Although the Commission could have required a licensee to ensure all functions of a system, structure, or component as part of the aging management review, the Commission concluded that this requirement would be unreasonable and inconsistent with the Commission's original intent to focus only on those systems, structures, and components of primary importance to safety. Consideration of ancillary functions would expand the scope of the license renewal review beyond the Commission's intent. Therefore, the Commission determined that ``required function'' in the current license renewal rule refers to those functions that are responsible for causing the systems, structures, and components to be considered important to license renewal.

To avoid any confusion with the current rule, the Commission has changed the term ``required function'' to ``intended function'' and explicitly stated in Sec. 54.4 that the intended functions for systems, structures, and components are the same functions that define the systems, structures, and components as being within the scope of the proposed rule.

(iii) Bounding the Scope of Review

Pre-application rule implementation has indicated that the description of systems, structures, and components subject to review for license renewal could be broadly interpreted and result in an unnecessary expansion of the review. To limit the potential for an unnecessary expansion of the review associated with the scoping category relating to nonsafety-related systems, structures, and components, the Commission intends this proposed nonsafety-related category (Sec. 54.4(a)(2)) to apply to systems, structures, and components whose failure would prevent the accomplishment of an intended function of a safety-related system, structure, and component. An applicant for license renewal should rely on the plant's current licensing bases, actual plant-specific experience, industry-wide operating experience, and existing engineering evaluations to determine those nonsafety-related systems, structures, and components that are the initial focus of the license renewal review. Consideration of hypothetical failures that could result from system interdependencies that are not part of the current licensing bases and that have not been previously experienced is not required.

Likewise, in order to limit the potential for unnecessary expansion of the review for the scoping category concerning those systems, structures, and components whose function is relied upon in certain plant safety analyses to demonstrate compliance with the Commission's regulations (i.e., environmental qualification, station blackout, anticipated transient without scram, pressurized thermal shock, and fire protection), the Commission intends that this scoping category include all systems, structures, and components whose function is relied upon to demonstrate compliance with the Commission's regulations. An applicant for license renewal should rely on the plant's current licensing bases, actual plant-specific experience, industry-wide operating experience, and existing engineering evaluations to determine those systems, structures, and components that are the initial focus of the license renewal review. Consideration of hypothetical failures that could result from system interdependencies, that are not part of the current licensing bases and that have not been previously experienced is not required.

d. The Regulatory Process and Aging Management

(i) Aging Mechanisms and Effects of Aging

The current license renewal review approach discussed in the SOC accompanying the December 13, 1991, rule emphasized the identification

and evaluation of aging mechanisms for systems, structures, and components within the scope of the rule. Primarily through pre-application implementation experience associated with the current license renewal rule and the evaluation of comments resulting from the September 1993 license renewal workshop, the Commission determined that an approach to license renewal that focuses only on the identification and evaluation of aging mechanisms could constitute an open-ended research project. Ultimately, this type of approach may not provide reasonable assurance that certain systems, structures, and components will continue to perform their intended functions. The Commission believes that regardless of the specific aging mechanism, only aging degradation that leads to degraded performance or condition (i.e., detrimental effects) is of principal concern for license renewal reviews. Because the detrimental effects of aging are manifested in degraded performance or condition, an appropriate license renewal review would ensure that licensee programs adequately monitor performance or condition in a manner that allows for the timely identification and correction of degraded conditions. The Commission concludes that a shift in focus to managing the detrimental effects of aging for license renewal reviews is appropriate and will provide reasonable assurance that systems, structures, and components are capable of performing their intended function during the period of extended operation.

This shift in focus of the license renewal review has resulted in several proposed changes to the license renewal rule. These changes include deleting the definitions of aging mechanism and age-related degradation, and replacing the references to managing ARDUTLR in the IPA with a requirement to demonstrate that the effects of aging will be adequately managed for the period of extended operation.

(ii) Regulatory Requirements and Reliance on the Regulatory Process for Managing the Effects of Aging

The Commission amended its regulations on July 10, 1991 (56 FR 31306), to require commercial nuclear power plant licensees to monitor the effectiveness of maintenance activities for safety-significant plant equipment to minimize the likelihood of failures and events caused by the lack of effective maintenance. The maintenance rule and its implementation guidance (1) provides for continued emphasis on the defense-in-depth principle by including selected balance-of-plant (BOP) systems, structures, and components, (2) integrates risk consideration into the maintenance process, (3) provides an enhanced regulatory basis for inspection and enforcement of BOP maintenance-related issues, and (4) provides a strengthened regulatory basis for ensuring that the progress achieved to date is sustained in the future. The requirements of the maintenance rule must be implemented by each licensee by July 10, 1996.

Commercial nuclear power plants have been performing a variety of maintenance activities that function effectively as aging management programs since plants were initially constructed. The Commission also recognizes that both the industry and the NRC have acquired extensive experience and knowledge in the area of nuclear power plant maintenance. Regarding the need for a maintenance rule, the results of the Commission's Maintenance Team Inspections (MTIs) indicated that licensees have adequate maintenance programs in place and have exhibited an improving trend in implementing them (56 FR 31307; July 10, 1991). However, the Commission determined that a maintenance rule was needed, in part because the MTIs identified some common maintenance-related weaknesses, such as inadequate root-cause analysis leading to repetitive failures, lack of equipment performance trending, and lack of appropriate consideration of plant risk in the prioritization, planning, and scheduling of maintenance.

Since publishing the license renewal rule on December 13, 1991, the regulatory process (e.g., regulatory requirements, aging research, inspection requirements, and inspection philosophy) for managing the detrimental effects of aging for important systems, structures, and components has continued to evolve. The changes in the regulatory process and initial experience with the license renewal rule have had a direct bearing on the Commission's conclusions regarding the appropriate focus of aging management review for systems, structures, and components that are within the scope of the license renewal rule, and how these systems, structures, and components are treated in the IPA process.

In June 1993, the NRC issued Regulatory Guide 1.160, ``Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.'' The regulatory guide provides an acceptable method for complying with the requirements of the maintenance rule and states that a licensee can use alternative methods if the licensee can demonstrate that these alternative methods satisfy the requirements of the rule. Because aging is a continuing process, the Commission has concluded that existing programs and regulatory requirements that continue to be applicable in the period of extended operation and provide adequate aging management for systems, structures, and components should be credited for license renewal. Accordingly, the proposed amendment to the license renewal rule would focus the renewal review on plant systems, structures, and components for which current activities and requirements may not be sufficient to manage the effects of aging in the period of extended operation.

(iii) Maintenance Rule Requirements and Implementation

As discussed in the regulatory analysis for the maintenance rule and in Regulatory Guide 1.160, the Commission's determination that a maintenance rule was needed arose from the conclusion that proper maintenance was essential to plant safety. A clear link exists between effective maintenance and safety as it relates to factors such as the number of transients and challenges to safety systems and the associated need for operability, availability, and reliability of safety-related systems, structures, and components. In addition, good maintenance is important to providing assurance that failures of other than safety-related systems, structures, and components that could initiate or adversely affect a transient or accident are minimized. Minimizing challenges to safety systems is consistent with the Commission's defense-in-depth philosophy. Therefore, nuclear power plant maintenance is clearly important to protecting the public health and safety.

The maintenance rule requires that power reactor licensees monitor the performance or condition of systems, structures, and components against licensee-established goals in a manner sufficient to provide reasonable assurance that these systems, structures, and components are capable of fulfilling their intended functions. Where it can be demonstrated that the performance or condition of systems, structures, and components is being effectively controlled through the performance of appropriate preventive maintenance, performance and condition monitoring against licensee-established goals is not required. Performance and condition-monitoring activities and associated goals and preventive maintenance activities must be evaluated once every refueling cycle, provided the interval between evaluations does not exceed 24 months.

As discussed in Regulatory Guide 1.160, the extent of monitoring may vary from system to system, depending on the system's importance to risk. Some monitoring at the component level may be necessary. However, most of the monitoring could be done at the plant, system, or system train level. For systems, structures, and components that fall within

the requirements of Sec. 50.65(a)(1), licensees must establish goals and monitor performance against these goals. These goals should be derived from information in the CLB and should be established commensurate with safety significance of the systems, structures, or components. These goals may be performance-oriented (reliability, unavailability) or condition-oriented (pump flow, pressure, vibration, valve stroke time, current, electrical resistance). An effective preventive maintenance program is required under Sec. 50.65(a)(2) if monitoring under Sec. 50.65(a)(1) is not performed.

The SOC for the maintenance rule (56 FR 31308; July 10, 1991) states that the scope of Sec. 50.65(a)(2) includes those systems, structures, and components that have ``inherently high reliability'' without maintenance. It is expected that many long-lived, passive structures and components could be considered inherently reliable by licensees and not be monitored under 10 CFR 50.65(a)(1). There may be few, if any, actual maintenance activities (e.g., inspection or condition monitoring) that a licensee conducts for such structures and components. Further, experience gained under the current license renewal rule, staff review of industry reports, NRC aging research, and operating experience indicate that such structures and components should be reviewed for license renewal if they are passive and long-lived. Therefore, the Commission believes that such structures and components that are technically within the scope of the maintenance rule should not be excluded from review for license renewal on the basis of their inherent reliability.

Although the maintenance rule does not become effective and enforceable until July 10, 1996, the Commission believes that reliance on the rule is an acceptable basis for managing the effects of aging for active functions of systems, structures, and components. As discussed in Regulatory Guide 1.160, implementation of the maintenance rule relies extensively on existing maintenance programs and activities. The industry has developed guidance for complying with the maintenance rule. The NRC staff has reviewed this guidance and found it acceptable. Many utilities may follow the industry guidance in implementing the maintenance rule. Furthermore, the failure of any licensee to comply with the maintenance rule is enforceable by the Commission after July 10, 1996.

Therefore, the Commission believes that with the additional experience it has gained with age-related degradation reviews and with the implementation of the maintenance rule, there is a sufficient basis for concluding that current licensee programs and activities, along with the regulatory process, will be adequate to manage the effects of aging on the active functions of all systems, structures, and components within the scope of license renewal during the period of extended operation such that the CLB will be maintained. The bases for this conclusion are discussed further in the following sections.

(iv) Integration of the Regulatory Process and the Maintenance Rule With the License Renewal Rule

Because of the resultant insight and understanding that the NRC gained in developing the implementation guidance for the maintenance rule, the Commission is now in a position to more fully integrate the maintenance rule and the license renewal rule. Because the intent of the license renewal rule and the maintenance rule is similar (ensuring that the detrimental effects of aging on the functionality of important systems, structures, and components are effectively managed), the Commission has determined that the license renewal rule should credit existing maintenance activities and maintenance rule requirements for most structures and components. Fundamental to establishing credit for the existing programs and the requirements of the maintenance rule is the recognition that licensee activities associated with the

implementation of the maintenance rule will continue throughout the renewal period and are consistent with the first principle of license renewal. As a result, the requirements in this proposed rule reflect a greater reliance on existing licensee programs that manage the detrimental effects of aging on functionality, including those activities implemented to meet the requirements of the maintenance rule.

In addition to the maintenance rule, the Commission has many individual requirements relative to maintenance throughout its regulations. These include 10 CFR 50.34(a)(3)(i); 50.34(a)(7); 50.34(b)(6)(i), (ii), (iii), and (iv); 50.34(b)(9); 50.34(f)(1)(i), (ii), (iii); 50.34(g); 50.34a(c); 50.36(a); 50.36(c)(2), (3), (5), and (7); 50.36a(a)(1); 50.49(b); 50.55a(g); Part 50, Appendix A, Criteria 1, 13, 18, 21, 32, 36, 37, 40, 43, 45, 46, 52, 53; and Part 50, Appendix B.

(v) Excluding Structures and Components With Active Functions

Performance and condition monitoring for systems, structures, and components typically involves the collection and analysis of key parametric data. This data provides information on the practical effects of age-related degradation on the functionality of systems, structures, and components. The nature of this parametric data associated with active functions (e.g., pump flows, pressure, vibrations, valve stroke time, current, electrical resistance) makes the data generally easier to monitor and analyze than parametric data related to passive functions (e.g., pipe wall thinning, fracture toughness, ductility, and mechanical strength). Although, as previously discussed, the requirements of the maintenance rule apply to systems, structures, and components that perform both active and passive functions, the Commission has determined that performance and condition-monitoring programs for structures and components that perform passive functions present limitations that should be considered in determining which structures and components can be generically excluded from an aging management review for license renewal.

Based on consideration of the effectiveness of existing programs which monitor the performance and condition of systems, structures, and components that perform active functions, the Commission concludes that structures and components associated only with active functions can be excluded from a license renewal aging management review. Functional degradation resulting from the effects of aging of those systems, structures, and components that perform active functions is more readily determinable, and existing programs and requirements applicable to this equipment are expected to continue to ensure the functionality of such equipment. Considerable experience has demonstrated the effectiveness of these programs and the performance-based requirements of the maintenance rule delineated in Sec. 50.65 are expected to further enhance existing maintenance programs. For example, many licensee programs that ensure compliance with technical specifications are based on surveillance activities that monitor performance of systems, structures, and components that perform active functions. As a result of the continued applicability of existing programs and regulatory requirements, the Commission believes that active functions of systems, structures, and components will be reasonably assured in any period of extended operation. Further discussion and justification for exclusion of active functions of structures and components within the scope of the license renewal rule but outside the scope of the maintenance rule are presented in Section (vi).

(vi) Excluding Active Fire Protection Components

The scope of the maintenance rule does not, in general, include installed fire protection systems, structures, and components because performance and condition monitoring is required by Sec. 50.48.

Therefore, for the purposes of license renewal, installed structures and components with active functions can be excluded from an aging management review because they are either within the scope of Sec. 50.65 or Sec. 50.48. Compliance with Sec. 50.48 is verified through the NRC inspection program.

The fire protection rule (Sec. 50.48) requires each nuclear power plant licensee to have in place a fire protection plan (FPP) that satisfies 10 CFR Part 50, Appendix A, Criterion 3. Licensees are required by Sec. 50.48 to retain the FPP and each change to the plan until the Commission terminates the reactor license. The NRC reviews each licensee's total FPP as described in the licensee's safety analysis report (SAR), using basic review guidance described in Sec. 50.48, as applicable to each plant.

The FPP establishes the fire protection policy for the protection of systems, structures, and components important to safety at each plant and the procedures, equipment, and personnel requirements necessary to implement the program at the plant site. The FPP is the integrated effort that involves systems, structures, and components, procedures, and personnel to carry out all activities of fire protection. The FPP includes system and facility design, fire prevention, fire detection, annunciation, confinement, suppression, administrative controls, fire brigade organization, inspection and maintenance, training, quality assurance, and testing.

The FPP is part of the CLB and contains maintenance and testing criteria that provide reasonable assurance that fire protection systems, structures, and components are capable of performing their intended function. The Commission concludes that it is appropriate to allow license renewal applicants to take credit for the FPP as an existing program that manages the detrimental effects of aging. The Commission concludes that active functions of installed fire protection components are excluded from aging management review based on a generic finding that performance or condition-monitoring programs afforded by the FPP are capable of detecting and subsequently mitigating the detrimental effects of aging.

(vii) Future Exclusion of Structures and Components Based on NRC Requirements

As part of the ongoing regulatory process, the NRC evaluates emerging technical issues and, when warranted, establishes new or revised regulatory requirements as part of the resolution of a new technical issue, subject to the provisions of the backfit rule (Sec. 50.109). Increasing experience with aging nuclear power plants has led to the imposition or consideration of additional requirements. For example, at this time the Commission is considering rulemaking activities associated with steam generator performance and containment inspections. For steam generators, the Commission is considering the need for a performance-based rule to address steam generator tube integrity. To address concerns regarding containments and liners, the Commission is considering amending Sec. 50.55(a) to incorporate the most recent version of Subsections IWE and IWL in the American Society of Mechanical Engineers (ASME) Code, Section XI.

Such new requirements, if implemented, would be relevant to both aging management and the structures and components subject to an aging management review for license renewal (i.e., long-lived, passive structures and components). As a result, as part of relevant future rulemakings, the Commission intends to evaluate whether these new requirements can be considered effective in continuing to manage the effects of aging through any renewal term. A positive conclusion could establish the bases for further limiting the scope of review for license renewal.

e. Current Licensing Basis and Maintaining the Function of Systems, Structures, and Components

In the SOC for the current license renewal rule, the Commission concluded that, with the exception of ARDUTLR, the current regulatory processes are sufficiently broad and rigorous and that these processes generally provide reasonable assurance that extended operation of existing plants would not endanger the public health and safety and would not be inimical to the common defense and security. By stating that the CLB must be maintained for the period of extended operation, the Commission indicated its intent to ensure the continuation of an acceptable level of safety for the plant.

Note: The expression in the second principle ``Maintaining the CLB,'' recognizes that a plant's CLB is not fixed. Rather, the CLB is dynamic and can be modified at any time during the initial operating term, during the license renewal process, and during the period of extended operation.

As discussed in the SOC for the current license renewal rule, the Commission stated that continued safe operation of a nuclear power plant requires that systems, structures, and components that perform or support safety functions continue to perform in accordance with the applicable requirements in the licensing basis. In addition, the Commission stated that the effects of ARDUTLR must be mitigated to ensure that the aged systems, structures, and components will adequately perform their designed safety or intended function.

In developing this proposed rule, a key issue that the Commission considered was whether or not a focus on ensuring a system's, structure's or component's function through performance or condition monitoring is a sufficient basis for concluding that the CLB will be maintained throughout the period of extended operation. The Commission considered whether the regulatory process and a focus on functionality during the license renewal review for the period of extended operation are sufficient to provide reasonable assurance that an acceptable level of safety (i.e., the CLB) will be maintained.

Continued safe operation of a commercial nuclear power plant requires that systems, structures, and components that perform or support safety functions continue to function in accordance with the applicable requirements in the licensing basis of the plant and that other plant systems, structures, and components do not substantially increase the frequency of challenges to plant safety systems, structures, and components. As a plant ages, a variety of aging mechanisms are operative, including erosion, corrosion, wear, thermal and radiation embrittlement, microbiologically induced aging effects, creep, shrinkage, and possibly others yet to be identified or fully understood. However, the detrimental effects of aging mechanisms can be observed by detrimental changes in the performance characteristics or condition of systems, structures, and components if they are properly monitored.

Aging can affect all systems, structures, and components to some degree. Generally, the changes resulting from detrimental aging effects are gradual. Licensees have ample opportunity to detect these degradations through performance and condition-monitoring programs, technical specification surveillances required by Sec. 50.36, and other licensee maintenance activities. Except for some well-understood aging mechanisms such as neutron embrittlement and intergranular stress corrosion cracking, the straightforward approach to detecting and mitigating the effects of aging begins with a process that verifies that the intended design functions of systems, structures, and

components have not been compromised or degraded. Licensees are required by current regulations to develop and implement programs that ensure that conditions adverse to quality, including degraded system, structure, or component function, are promptly identified and corrected. The licensees' programs include self-inspection, maintenance, and technical specification surveillance programs that monitor and test the physical condition of plant systems, structures, and components.

For example, technical specifications include limiting conditions for operation (LCOs), which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Technical specifications also require surveillance requirements relating to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within the safety limits, and that the LCOs will be met. Furthermore, Sec. 50.55a requires, in part, that structures, systems, and components be tested and inspected against quality standards commensurate with the importance of the safety function to be performed, such as inservice testing (IST) and inservice inspections (ISIs) of pumps and valves.

Elements for timely mitigation of age-related degradation effects include activities that provide reasonable assurance that systems, structures, and components will perform their intended functions when called upon to do so. Through these programs, licensees identify the degradation of components resulting from a number of different environmental stressors as well as degradation from faulty maintenance or other errors caused by personnel. Once a detrimental performance or condition caused by aging or other factors is revealed, mitigating actions are taken to fully restore the conditions within the design basis. As a result of these programs, degradation due to aging mechanisms (detrimental aging effects) is currently being adequately managed, either directly or indirectly, for many systems, structures, and components.

Consequently, there is considerable logic in ensuring that the design basis (as defined in Sec. 50.2) of systems, structures, and components is maintained through activities that ensure continued functionality. This process is relied on in the current term to ensure continued operability of systems, structures, and components and includes surveillance of systems, structures, and components to ensure that, to the greatest extent practicable, the system, structure, or component properly performs the intended design functions. The focus on maintaining operability results in the continuing capability of systems, structures, and components, including supporting systems, structures, and components, to perform their intended functions as designed.

A key element of the 10 CFR Part 54 definition of the CLB is the plant-specific design-basis information defined in 10 CFR 50.2. According to this definition, ``[d]esign bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design.'' In addition, design bases identify specific functions to be performed by a system, structure, and component, and design-basis values may be derived for achieving functional goals. For plant systems, structures, and components that are not subject to performance or condition-monitoring programs or for plant systems, structures, and components on which the detrimental effects of aging may not be as readily apparent, verification of specific design values (e.g., piping wall thickness) or demonstration by analysis can be a basis for concluding that the function of the system, structure, or component

will be maintained in the period of extended operation.

When the design bases of systems, structures, and components can be confirmed either directly by inspection or by verification of functionality through test or analysis, a reasonable conclusion can be drawn that the CLB is or will be maintained. This conclusion recognizes that the portion of the CLB that can be impacted by the detrimental effects of aging is limited to the design bases aspects of the CLB.

Although the definition of CLB in Part 54 is broad and encompasses various aspects of the NRC regulatory process (e.g., operability and design requirements), the Commission concludes that a specific focus on functionality is appropriate for performing the license renewal review. Reasonable assurance that the function of important systems, structures, and components will be maintained throughout the renewal period, combined with the rule's stipulation that all aspects of a plant's CLB (e.g., technical specifications) and the NRC's regulatory process carry forward into the renewal period, are viewed as sufficient to conclude that the CLB (which represents an acceptable level of safety) will be maintained. Functional capability is the principal emphasis for much of the CLB and is the focus of the maintenance rule and other regulatory requirements to ensure that aging issues are appropriately managed in the current license term.

An example of performance verification activities that must be performed by licensees is the integrated loss of coolant accident (LOCA)/loss of offsite power (LOOP) integrated test. This technical specification surveillance is typically required to be performed at least once every 18 months. This test simulates a coincident LOCA/LOOP (design-basis accident) for each train or division of emergency alternating current (ac) power source (e.g., emergency diesel generators), the associated emergency core cooling systems (e.g., safety injection subsystems), and other electrically driven safety components (e.g., containment isolation valves, emergency ventilation/ filtration components, and auxiliary steam generator feed components). All engineered safety features required to actuate for an actual LOCA/ LOOP are required to actuate for the test and either duplicate the LOCA/LOOP function completely (e.g., electric loads are sequenced onto emergency busses, containment isolation valves actually shut from full open positions) or approximate the actual function to the greatest extent practicable (e.g., safety injection pumps start and run in recirculation mode instead of actually injecting water into the reactor coolant system). Design-basis values that can only be measured during this testing, such as load sequence times and emergency bus voltage response to the sequenced loads, are verified. Between integrated tests, monthly and quarterly surveillances verify specific component performance criteria such as valve stroke times or pump flow values. The acceptance criteria stated in the surveillance requirements are derived from design-basis values with appropriate conservatisms built in to account for any uncertainties or measurement tolerances. Satisfactory accomplishment and periodic repetition of these types of surveillance provide reasonable assurance that system, structure, and component functions will be performed as designed.

f. Integrated Plant Assessment

The current license renewal rule requires license renewal applicants to perform a systematic screening of plant systems, structures, and components to ultimately determine if aging would be adequately managed in the period of extended operation. This IPA process would begin broadly and consider all plant systems, structures, and components. The IPA would then focus on only those that are important to license renewal and finally on only those structures and

components that could be subject to ARDUTLR. For those structures and components subject to ARDUTLR, the IPA process required an evaluation and demonstration that either (1) New programs or licensee actions would be implemented to prevent or mitigate any ARDUTLR during the period of extended operation or (2) justifies that no actions are necessary.

Based on experience gained from implementation of the license renewal rule, the Commission determined that the current license renewal review would require the evaluation of an unnecessarily large number of plant systems, structures, and components to establish appropriate aging management in the period of extended operation. Experience, further consideration of existing activities, and the requirements of the maintenance rule have led the Commission to conclude that many of these systems, structures, and components are already subject to activities that ensure their function through any period of extended operation. Therefore, the Commission proposes to amend the IPA process in the license renewal rule to more efficiently focus the license renewal review on certain structures and components for which the regulatory process and existing licensee programs and activities may not adequately manage the detrimental effects of aging in the period of extended operation.

The approach reflected in this proposed rule maintains the requirement for each renewal applicant to address possible detrimental effects of aging for certain structures and components during the period of extended operation through the IPA process. The proposed rule would simplify the IPA process consistent with (1) The Commission's determination that the aging management review should focus on ensuring that structures and components perform their intended function(s) and (2) the additional experience the Commission has gained related to aging management review since publishing the current license renewal rule. The proposed rule would still require that applicants for license renewal take necessary actions to ensure that the CLB will be maintained and thus maintain an acceptable level of safety during the period of extended operation.

Similarly, the IPA process would continue to require an initial review of all plant systems, structures, and components to identify the scope and would then focus on those structures and components requiring aging management review for license renewal. The principal differences between the IPA process in the current license renewal rule and the IPA process in the proposed rule is--

(1) The determination of the reduced set of structures and components which must undergo an aging management review;

(2) The form of the aging management review (managing the effects of aging on functionality versus managing aging mechanisms); and

(3) The elimination of the term ARDUTLR.

(i) Determination of Structures and Components Requiring Aging Management Review for License Renewal

In the SOC for the current license renewal rule, the Commission stated that as it gains more experience with age-related degradation reviews it may revisit the need for such a disciplined review process and may narrow the scope of the safety review. The Commission now believes that after reviewing its recent implementation experience, a narrower scope of review is warranted. The Commission concludes that a generic exclusion from aging management review is appropriate for those categories of structures and components subject to existing programs and activities that the Commission believes are sufficient to provide reasonable assurance of continued function in the period of extended operation.

As discussed in Section III.d of this SOC, the Commission has determined that the current regulatory process, existing licensee

programs and activities, and the maintenance rule provide an acceptable rationale for generically concluding that structures and components that have active functions can be excluded from an aging management review. However, the Commission does not believe that it can generically exclude structures and components that--

(1) Do not have performance and condition characteristics that are as readily monitorable as active components; and

(2) Are not subject to periodic, planned replacement.

Unlike the extensive experience associated with the performance and condition monitoring of the active functions of structures and components, little experience has been gained from the evaluation of long-term effects of aging on the passive functions of structures and components. The Commission considers that the detrimental effects of aging affecting passive functions of structures and components are less apparent than the detrimental effects of aging affecting the active functions of structures and components. Therefore, the Commission concludes that a generic exclusion for passive structures and components is inappropriate at this time. The Commission also concludes that an aging management review of the passive functions of structures and components is warranted to provide the reasonable assurance that their intended functions are adequately maintained during the period of extended operation. Additional experience with managing the effects of aging on the function of these structures and components may narrow the selection of structures and components requiring an aging management review for license renewal in the future.

(a) ``Passive'' structures and components. In Section III.d of this SOC, the Commission concluded that structures and components having active functions can be excluded from an aging management review based on performance or condition-monitoring programs. The Commission recognizes that ``passive'' structures and components, in general, do not have performance and condition characteristics that are as readily monitorable as active structures and components. Therefore, the Commission concludes that an aging management review for certain passive structures and components is required for license renewal.

The Commission has reviewed several industry concepts of ``passive'' structures and components and has determined that they do not accurately describe the structures and components that should be subject to an aging management review for license renewal. Accordingly, the Commission has developed a description of ``passive'' characteristics of structures and components that require aging management review. Furthermore, the Commission has directly incorporated these characteristics into the IPA process to avoid the creation of a new term, ``passive.'' This SOC uses the term ``passive'' for convenience. Furthermore, the description of ``passive'' structures and components incorporated into Sec. 54.21(a) should be utilized only in connection with the IPA review in the license renewal process.

The maintenance rule implementation guidance contains a provision by which licensees may classify certain systems, structures, and components (e.g., raceways, tanks, and structures) as inherently reliable. Inherently reliable systems, structures, and components by definition generally do not require any continuing maintenance actions and should be considered as ``passive.''

The Commission considers structures and components for which aging degradation is not readily monitored to be those that perform an intended function without moving parts or without a change in configuration or properties. For example, a pump or valve has moving parts, an electrical relay can change its configuration, and a battery changes its electrolyte properties when discharging. Therefore, the performance or condition of these components is readily monitored and would not be captured by this description. Further, the Commission

proposes that ``a change in configuration or properties'' should be interpreted to include ``a change in state,'' which is a term sometimes found in the literature relating to ``passive.'' For example, a battery can ``change its state'' and therefore would not be screened in under this description.

Structures or components may have multiple functions, thus some structures or components may meet the ``passive'' description. For example, although a pump or a valve has some moving parts, a pump casing or valve body performs a pressure-retaining function without moving parts. A pump casing or a valve body meets this description and therefore would be considered for an aging management review. However, the moving parts of the pump, such as the pump impeller, would not be subject to aging management review.

As examples of the implementation of this screening requirement, the Commission would consider structures and components meeting the passive description as including, but not limited to, the reactor vessel, the reactor coolant pressure boundary, steam generators, the pressurizer, piping, pump casings, valve bodies, the core shroud, piping supports, the spent fuel rack, pressure retaining boundaries, heat exchangers, ventilation ducts, the containment, the containment liner, electrical penetrations, mechanical penetrations, equipment hatches, seismic Category I structures, electrical cables and connections, cable trays, and electrical cabinets.

Additionally, the Commission would consider structures and components not meeting the ``passive'' description as including, but not limited to, the portions of pumps that do not form pressure retaining boundaries, motors, diesel generators, air compressors, snubbers, the control rod drive, ventilation dampers, pressure transmitters, pressure indicator, water level indicators, switchgears, cooling fans, transistors, batteries, breakers, relays, switches, power inverters, circuit boards, battery chargers, and power supplies.

(b) ``Long-lived'' structures and components. The Commission recognizes that the detrimental effects of aging will increase as service life is extended. One way to effectively mitigate these effects is through replacement. Accordingly, maintenance programs that periodically replace structures and components may provide reasonable assurance that the effects of aging will not impair structure or component performance during the period of extended operation. Conversely, structures and components that are not replaced may be more likely to be impaired by cumulative aging effects.

The Commission considers structures and components to be ``long-lived'' if they are not subject to periodic replacement based on a qualified life or a specified time period. Therefore, in addition to the ``passive'' screening criterion, the Commission concludes that structures and components that are not replaced based on a qualified life or specified time period must be considered for an aging management review.

It is important to note, however, that the Commission has decided not to generically exclude structures and components that are replaced based on performance or condition from an aging management review. The Commission does not intend to preclude a license renewal applicant from providing site-specific justification in a license renewal application that a replacement program based on performance or condition for a passive structure or component provides reasonable assurance that functionality will be maintained in the period of extended operation.

(ii) The IPA Process

The Commission proposes to revise and simplify the IPA requirements (Sec. 54.21(a)) as follows:

First, instead of listing those systems, structures, and components that are important to license renewal, the Commission proposes to

require only a list (from those systems, structures, and components within the scope of license renewal) of structures and components that a licensee determines to be subject to an aging management review for the period of extended operation. A licensee has the flexibility to determine the set of structures and components for which an aging management review is performed, provided that this set encompasses the structures and components for which the Commission has determined an aging management review is required for the period of extended operation. Therefore, a licensee's aging management review must include structures and components--

(1) That were not subject to replacement based on a qualified life or a specified time period; and

(2) That perform an intended function (Sec. 54.4) without moving parts or without a change in configuration or properties.

In establishing this flexibility, the Commission recognizes that licensees may find it preferable to not take maximum advantage of the Commission's generic conclusion regarding structures and components which do not require agency management review, and may undertake a broader scope of review than is minimally required. For example, a licensee may desire to review all ``passive'' structures and components. This set of structures and components would be acceptable because it includes ``long-lived'' as well as periodically replaced structures and components and, therefore, encompasses all structures and components which would be identified through criteria (1) and (2).

Second, the IPA must contain a description of the methodology used to determine those systems, structures, and components within the scope of license renewal and those structures and components subject to an aging management review, such that the minimum required structures and components are included in the applicant's aging management review.

Third, the IPA must contain a demonstration for each structure and component subject to an aging management review so that the effects of aging will be managed in such a way that the intended function(s) will be maintained for the period of extended operation. This demonstration should include a description of activities, as well as any changes to the CLB and plant modifications that are relied upon to demonstrate that the intended function(s) is adequately maintained despite the effects of aging in the period of extended operation.

g. Time-Limited Aging Analyses and Exemptions

(i) Time-Limited Aging Analyses

The definition of ARDUTLR in the current license renewal rule requires a licensee evaluation and NRC approval of previous time-limited aging analyses for systems, structures, and components within the scope of license renewal that either were based on an assumed service life or a period of operation defined by the original license term. For example, certain plant-specific safety analyses may have been based on an explicitly assumed 40-year plant life (e.g., aspects of the reactor vessel design). As a result, an evaluation for license renewal would be required. Time-limited aging analyses based on an assumed period of plant operation short of the current operating term should be addressed within the original license and are of no concern for license renewal.

Because the Commission proposes to delete the definition of ARDUTLR, the amended license renewal rule would have to identify these explicit time-limited analyses as issues that must be clearly addressed within the license renewal process. The proposed rule would explicitly require that--

(1) Applicants perform an evaluation of time-limited aging issues relevant to systems, structures, and components within the scope of

license renewal in the license renewal application; and

(2) The adequate resolution of time-limited aging analysis issues as part of the standards for issuance of a renewed license.

The time-limited provisions or analyses of concern are those that--

(1) Involve the effects of aging;

(2) Involve time-limited assumptions defined by the current operating term, for example, 40 years;

(3) Involve systems, structures, and components within the scope of license renewal;

(4) Involve conclusions or provide the basis for conclusions related to the capability of the system, structure, and component to perform its intended functions;

(5) Were determined to be relevant by the licensee in making a safety determination; and

(6) Are contained or incorporated by reference in the CLB.

The applicant for license renewal will be required in the renewal application to--

(1) Justify that these analyses are valid for the period of extended operation;

(2) Extend the period of evaluation of the analyses such that they are valid for the period of extended operation, for example, 60 years; or

(3) Justify that the effects of aging will be adequately managed for the period of extended operation if an applicant cannot or chooses not to justify or extend an existing time-limited aging analysis.

The Commission considers analyses to be ``relevant'' if the analyses provided the basis for the licensee's safety determination and, in the absence of the analyses, the licensee may have reached a different safety conclusion. Time-limited aging analyses that need to be addressed in a license renewal evaluation are not necessarily those analyses that have been previously reviewed or approved by the Commission. The following examples illustrate time-limited aging analyses that may need to be addressed and were not previously reviewed and approved by the Commission.

(1) The FSAR states that the design complies with a certain ASME code requirement. A review of the ASME code requirement reveals that a time-limited aging analysis is required. The actual calculation was performed by the licensee to meet code requirements, the specific calculation was not referenced in the FSAR, and the NRC had not reviewed the calculation.

(2) In response to a generic letter, a licensee submitted a letter to the NRC committing to perform a time-limited aging analysis that would address the concern in the generic letter. The NRC had not documented a review of the licensee's response and had not reviewed the actual analysis.

The Commission expects that the number of time-limited aging analyses that would have to be addressed in a license renewal evaluation is relatively small. Although the number and type will vary depending on the plant-specific CLB, these analyses could include reactor vessel neutron embrittlement (pressurized thermal shock, upper-shelf energy, surveillance program), concrete containment tendon prestress, metal fatigue, EQ of electrical equipment, metal corrosion allowance, inservice flaw growth analyses that demonstrate structural stability for 40 years, inservice local metal containment corrosion analyses, and high-energy line-break postulation based on fatigue cumulative usage factor.

(ii) Exemptions

The current license renewal rule requires that an applicant for license renewal provide a list of all plant-specific exemptions granted under 10 CFR 50.12. For exemptions that were either granted on the

basis of an assumed service life or a period of operation bounded by the original license term of the facility or otherwise related to systems, structures, or components subject to ARDUTLR, an evaluation that justifies the continuation of the exemptions for the renewal term must be provided.

With the deletion of the definition of ARDUTLR and the corresponding addition of a separate time-limited aging analysis section, the Commission proposes to include this exemption review with the separate time-limited aging analyses Section (Sec. 54.21(c)). These changes are consistent with the Commission's intent to review exemptions based on time-limited aging analyses under the current rule.

h. Standards for Issuance of a Renewed License and the Scope of Hearings

Section 54.29 of the current license renewal rule provides that the Commission may issue a renewed license if--

(1) Actions have been identified and have been or will be taken with respect to age-related degradation unique to license renewal so that there is reasonable assurance that operation in the period of extended operation would be conducted in accordance with the plant's CLB. This necessarily includes compliance with the Atomic Energy Act of 1954 and the Commission's regulation as defined in Sec. 54.3);

(2) The applicable requirements of the Commission's environmental requirements in 10 CFR Part 51 have been satisfied; and

(3) Any matters raised under 10 CFR 2.758 have been addressed as required by that section.

Issues that are material to the findings in Sec. 54.29 of the current rule, as well as matters approved by the Commission for hearing under Sec. 2.758, were within the scope of a hearing on a renewed license. The December 13, 1991, license renewal rule also modified Sec. 2.758 to clarify that challenges to the license renewal rule in an adjudicatory hearing on a renewal application would be considered by the Commission only in the following limited circumstances:

(1) That there are special circumstances with respect to age-related degradation unique to license renewal or environmental protection so that application of either 10 CFR Part 54 or 10 CFR Part 51 would not serve the purpose for which these rules were intended; or

(2) Because of circumstances unique to the period of extended operation, there would be noncompliance with the plant's CLB or operation that is inimical to the public health and safety during the period of extended operation.

The intent of these provisions was to clarify that safety and environmental matters not unique to the period of extended operation should not be the subject of the renewal application or the subject of a hearing in a renewal proceeding absent specific Commission direction. Rather, issues that represent a current problem for operation should be addressed in accordance with the Commission's regulatory process and procedures. Thus, a member of the public who believes that a current problem exists with a license or a matter exists that is not adequately addressed by current NRC regulations should either petition the NRC to take appropriate action under Sec. 2.206 or petition the NRC to institute rulemaking to address the issue under Sec. 2.802.

The Commission continues to believe that issues concerning operation during the currently authorized term of operation should be addressed as part of the current license rather than deferred until a renewal review (which would not occur if the licensee chooses not to renew its operating license). The Commission also proposes narrowing the scope of structures and components which will require an aging management review for the period of extended operation and

identification of time-limited aging analyses by the applicant as requiring an evaluation. Accordingly, conforming changes in Sec. 54.29 are being proposed to reflect the refocused renewal review. Specifically, Sec. 54.29 would be revised to delete the term ``age-related degradation unique to license renewal,'' and substitute the findings (required for consistency with the revised Sec. 54.21(a)(3) and (c)) with respect to aging management review and time-limited aging analyses evaluation for the period of extended operation. Furthermore, Sec. 54.29 would be modified to make clear that aging issues discovered during the renewal review for the structures and components that are reviewed in Sec. 54.21(a)(3) and that raise questions about the capability of these structures and components to perform their intended function during the current term of operation must be addressed under the current license, rather than as part of the renewal review. Finally, Sec. 2.758 has similarly been revised to delete the terms ``age-related degradation unique to license renewal'' and ``unique to the requested term.''

i. Regulatory and Administrative Controls

Certain regulatory and administrative controls in the current license renewal rule were imposed to specify the circumstances and requirements necessary to make changes relating to the determination and management of ARDUTLR and the recordkeeping and reporting requirements relating to the renewal application. In view of the greater reliance on existing programs in the license renewal process, as discussed in Section III.d of this SOC, the Commission has determined that many of these requirements are no longer necessary. Therefore, the Commission proposes to decrease the recordkeeping and reporting burden on the applicant for license renewal in the level of detail in the application, requirements for supplementing the FSAR, and in recordkeeping requirements.

The Commission seeks to ensure that, in general, only the information needed to make its safety determination is submitted to the NRC for license renewal review and that regulatory controls imposed by the license renewal rule are consistent with current regulatory controls on similar information that may be developed by a licensee during the current operating term.

(i) Controls on Technical Information in an Application

In Sec. 54.21, the current license renewal rule requires that an application include a supplement to the FSAR that presents the information required by this section. This information includes the IPA lists of systems, structures, and components; justification for assessment methods; and descriptions of programs to manage ARDUTLR.

The simplification of the IPA process (Section III.f of this SOC) and the clarification of the concept of ARDUTLR (Section III.b of this SOC) have resulted in a potential inconsistency regarding the treatment of information associated with the IPA. The Commission has determined that there is no need to include the entire IPA in an FSAR supplement because only the information associated with the IPA regarding the basis for determining that aging effects are managed in the period of extended operation requires the additional regulatory oversight afforded by placing the information in the FSAR. Therefore, only a summary description of the programs and activities for managing the effects of aging during the period of extended operation for those structures and components requiring an aging management review need to be included in the FSAR supplement. The IPA methodology and the list of structures and components need not appear in an FSAR supplement. However, this information will still be required in the application for license renewal.

The Commission also proposes to eliminate Sec. 54.21(b) and Sec. 54.21(d). These sections concern CLB changes associated with ARDUTLR and plant modifications necessary to ensure that ARDUTLR is adequately managed during the period of extended operation. The Commission fully expects that relevant information concerning CLB changes and plant modifications required to demonstrate that aging effects for systems, structures, and components requiring an aging management review for license renewal will be described in the application for license renewal (proposed Secs. 54.21(a)(3) and (c)). If a license renewal applicant or the Commission determines that CLB changes or plant modifications form the basis for an IPA conclusion regarding structures and components requiring an aging management review, then an appropriate description of the CLB change or plant modification must be included in the FSAR supplement and later changes can be controlled by Sec. 50.59.

Section 54.21(c) of the current license renewal rule requires that an applicant for license renewal submit (1) A list of all plant-specific exemptions granted pursuant to 10 CFR 50.12 and each relief granted pursuant to 10 CFR 50.55a and (2) an evaluation if the exemption or relief is related to a system, structure, or component that was subject to ARDUTLR or a time-limited function. These lists and evaluations would be included in the supplement to the FSAR. At that time, the Commission determined that these requirements were necessary to make an independent assessment that all exemptions and reliefs had been evaluated as part of the license renewal process. The Commission determined that these requirements were important because they provided a summary of the instances in the licensing basis for the period of extended operation in which the staff determined that strict compliance with existing regulatory requirements is not needed to ensure that the public health and safety is adequately protected.

The Commission continues to believe that the rationale and basis for requiring the information to be submitted are still valid for exemptions. The Commission proposes to relocate the requirement to list and evaluate certain exemptions to proposed Sec. 54.21(c) so that exemptions can be considered a subset of time-limited aging issues and the conclusions about exemptions can be explicitly considered in the finding for license renewal.

However, consistent with the Commission's rationale for including only a summary description of programs and activities in the FSAR supplement, the Commission concludes that only a summary description of the evaluation of time-limited aging analyses, including a summary of the bases for exemptions that are based on time-limited aging analyses, need to be included in the FSAR supplement. The Commission concludes that no need exists to establish additional requirements that place the list of exemptions or specific exemption evaluations into the FSAR supplement. This information must still be contained in the application for license renewal.

A relief from codes need not be evaluated as part of the license renewal process. A relief granted pursuant to 10 CFR 50.55a is specifically envisioned by the regulatory process. A relief expires after a specified time interval (not to exceed 10 years) and a licensee is required to rejustify the basis for the relief. At that time, the NRC performs another review and may or may not grant the relief. Because a relief is, in fact, an NRC-approved deviation from the codes and subject to a periodic review, the Commission concludes that reliefs are adequately managed by the current regulatory process and should not require an aging management review and potential rejustification for license renewal. Therefore, the Commission proposes to delete the requirement to list and evaluate reliefs from Sec. 54.21(c).

(ii) Conditions of Renewed License

Section 54.33 requires that, upon renewal, a licensee maintain the programs and procedures which are reviewed and approved by the NRC staff who manage ARDUTLR. In addition, Sec. 54.33 establishes requirements for making changes to previously approved programs and procedures to manage ARDUTLR.

Considering the proposed amendments associated with the clarification of the concept of ARDUTLR, the Commission will review programs and procedures to manage the effects of aging for certain systems, structures, and components. However, the Commission will not approve specific programs and procedures as envisioned by the current license renewal rule (e.g., effective programs). The Commission will review programs and procedures described in the license renewal application and determine whether these programs and procedures provide reasonable assurance that the functionality of systems, structures, and components requiring review will be maintained in the period of extended operation. The license renewal review that would be conducted under this proposed rule may consider all programs and activities to manage the effects of aging that ensure functionality for these systems, structures, and components. A summary description of the programs and activities for managing the effects of aging for the period of extended operation or evaluation of time-limited aging analyses, as appropriate, for these systems, structures, and components will be placed into the FSAR supplement. License conditions and limitations determined to be necessary as part of the license renewal review will continue to be required by the Commission in accordance with Sec. 54.33(b).

The regulatory process will continue to ensure that proposed changes to programs and activities that may affect descriptions in the FSAR will receive adequate review by the licensee and, if appropriate, by the NRC. Therefore, the Commission proposes to delete the Sec. 54.33(d) requirements for making changes to previously approved programs and procedures to manage ARDUTLR.

(iii) Additional Records and Recordkeeping Requirements

Section 54.37 currently requires that the periodic update required by Sec. 50.71(e) do the following:

(1) Include any systems, structures, and components newly identified as important to license renewal after the renewed license is issued;

(2) Identify and provide justification for any systems, structures, and components deleted from the list of systems, structures, and components important to license renewal; and

(3) Describe how ARDUTLR will be managed for those newly identified systems, structures, and components.

The Commission has determined that regulatory controls over programs or activities credited during the IPA process should not have additional regulatory oversight unless a program or activity is determined to be necessary to address the effects of aging for the period of extended operation. Therefore, the Commission proposes to modify Sec. 54.37(b) to limit the information required in the FSAR update. For newly identified systems, structures, and components that would have required review for license renewal, the proposed requirement for the periodic FSAR update will require that the licensee describe how the effects of aging will be managed to ensure that the systems, structures, and components perform their intended function during the period of extended operation.

Section 54.37(c) currently requires that a licensee do the following:

(1) Submit to the NRC at least annually a list of all changes made to programs for management of ARDUTLR that do not decrease the effectiveness of ``effective'' programs, with a summary of the

justification and
(2) Maintain documentation for any changes to ``effective'' programs that are determined not to reduce the effectiveness of the program.

Under the proposed rule, the Commission would review aspects of programs and procedures described in the license renewal application and determine whether these programs and procedures will provide reasonable assurance that the functionality of systems, structures, and components requiring review will be maintained in the period of extended operation. The license renewal review that would be conducted under this proposed rule may consider all programs and activities that manage the effects of aging and ensure functionality for these certain systems, structures, and components. The current regulatory process, existing licensee oversight activities, and the additional regulatory controls associated with placing a description of activities to manage the effects of aging into the FSAR are sufficient to ensure that changes to programs that could decrease the overall effectiveness of the programs to manage the effects of aging for the systems, structures, and components requiring license renewal review will receive appropriate review by the licensee. Therefore, the Commission proposes to delete Sec. 54.37(c).

IV. Availability of Documents

Copies of all documents cited in the Supplementary Information section are available for inspection and/or for reproduction for a fee in the NRC Public Document Room, 2120 L Street N.W. (lower level), Washington, DC 20555.

In addition, copies of NUREGs cited in this document may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies are also available for purchase from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. The NUREGs can also be accessed through the NRC electronic bulletin board system. Details of how to use this system were published in the Federal Register on November 25, 1992 (57 FR 55602).

V. Questions

Although the Commission invites public comments on all issues in this proposed rule and statement of considerations, responses to the following questions are particularly solicited:

Discussion. An aging management review is required for a small subset of structures and components within the scope of license renewal. As described in Section III.f, the Commission believes, based upon current regulatory requirements and operating experience, that the aging management review can be limited to ``passive,'' ``long-lived'' structures and components.

1. Should additional structures and components within the scope of license renewal be explicitly required to receive an aging management review?

2. If so, what would be the bases for requiring such additional structures and components to be subject to an aging management review?

Discussion. The IPA in the proposed amendment to the license renewal rule contains a process to narrow the focus of the aging management review to encompass those structures and components that are ``long-lived'' and ``passive'' (see Sec. 54.21(a)(1) (i) and (ii)).

In SECY-94-140, the Commission considered the possibility that redundant, long-lived, passive structures and components could be generically excluded from an aging management review for license

renewal. The basis for this consideration was that redundancy is one aspect of a defense-in-depth design philosophy that could provide reasonable assurance that certain single failures would not render systems, structures, or components incapable of performing their intended function(s). The staff reasoned that although simultaneous failures of redundant structures and components are hypothetically possible, the physical variables and the differences in operational and maintenance histories that will influence the incidence and rates of aging degradation between otherwise identical structures and components make simultaneous failures of redundant equipment unlikely. In addition, existing programs and requirements (i.e., maintenance rule and 10 CFR Part 50, Appendix B) would result in activities to determine the root causes for failures and mitigate future occurrences of them.

On further consideration, however, the Commission has recognized that since it cannot generically determine that all licensees have processes, programs, or procedures in place for the timely detection of degraded conditions due to aging during the extended period of operation for passive, long-lived structures and components, the potential exists for reduced reliability and failure of redundant, long-lived, passive structures and components. If the condition of these structures and components were degraded below their CLB (i.e., design bases, including seismic design), without detection and corrective action, a failure of redundant, passive structures and components is possible given, for example, the occurrence of a design basis seismic event, such that the system may not be able to perform its intended functions. Therefore, without readily monitorable performance and/or condition characteristics to reveal degradation that exceeds CLB levels (as in the case of passive, long-lived structures and components) the Commission believes it inappropriate to permit generic exclusion of redundant, long-lived, passive structures and components. If, however, an applicant, in the site-specific renewal application, can demonstrate that their facility has specific programs or processes in place to detect ongoing degradation such that failure of redundant, long-lived, passive structures and components is avoided, the Commission may be able to credit such programs and allow redundant, long-lived, passive structures and components to be excluded from further aging management review.

3. Is there additional information for the Commission to consider that would satisfy the Commission's concern relative to the detection of degradation in redundant, long-lived, passive structures and components such that failures that might result in loss of system function are unlikely, and to warrant a generic exclusion?

Discussion. The Commission concluded in the SOC for the current license renewal rule (56 FR 64963; December 13, 1991) that 20 years of operational and regulatory experience provides a licensee with substantial amounts of information and would disclose any plant-specific concerns with regard to age-related degradation. In addition, a license renewal decision with approximately 20 years remaining on the operating license would be reasonable considering the estimated time necessary for utilities to plan for replacement of retired nuclear power plants. One utility has recently indicated that decisions regarding license renewal made earlier in the current license term may create substantial current-day economic advantages while still providing sufficient plant-specific history. This utility suggested that the earliest date for filing a license renewal application be changed so that a license renewal application can be submitted earlier than 20 years before expiration of the existing operating license. The term of the renewed license would still be limited to 40 years.

4. Is there a sufficient plant-specific history before 20 years of operation as specified in the current rule that provides reasonable

assurance that aging concerns would be identified? If not, can reliance on industry-wide experience be used as a basis for considering an application for license renewal before 20 years of operation? What should be the earliest time an applicant can apply for a renewed license?

5. What additional safety, environmental, or economic benefits or concerns, if any, would result from a decision about license renewal made before the 20th year of current plant operation?

VI. Finding of No Significant Environmental Impact: Availability

A draft environmental assessment (EA) for this proposed rule has been prepared pursuant to the National Environmental Policy Act (NEPA), the regulations issued by the Council on Environmental Quality (40 CFR 1500-1508), and the NRC's regulations (10 CFR Part 51). Under NEPA and the NRC's regulations, the Commission must consider, as an integral part of its decisionmaking process on the proposed action, the expected environmental impacts of promulgating the proposed rule and the reasonable alternatives to the action. The NRC concludes that promulgation of the proposed rule would not significantly affect the environment and therefore a full environmental impact statement is not required and a finding of no significant impact (FONSI), can be made. The basis for these conclusions and the finding are summarized below. The EA and FONSI are issued as drafts, and public comments are being solicited. The draft EA and FONSI are available in the NRC Public Document Room, 2120 L Street N.W. (lower level), Washington, DC.

The NRC staff previously assessed the environmental impacts from promulgation of the current license renewal rule in NUREG-1398, ``Environmental Assessment for the Final Rule on Nuclear Power Plant License Renewal.'' In this assessment, the NRC staff concluded that the promulgation of 10 CFR Part 54 will have no significant impact on the environment. With this assessment as a baseline, the NRC staff's approach for assessing the environmental impact of the proposed amendment centered on analyzing any differences in the expected rule-related actions of the current rule compared to those under the proposed amendment.

The requirements for a renewed license under both the current rule and the proposed amendment are similar. Both approaches could result in the operation of plants up to 20 years beyond the expiration of the initial license. An emphasis would be placed on certain systems, structures, and components undergoing a specific aging management review to provide assurance that the effects of aging are adequately managed, ensuring functionality during the period of extended operation. Under both approaches, license renewal applicants must screen plant systems, structures, and components through an IPA to determine which systems, structures, and components will be subject to a license renewal review and then determine whether additional programs are required to manage the effects of aging so that the intended function(s) is maintained. The principal differences between the proposed action and the current rule is in (1) the screening of systems, structures, and components to identify those that must undergo a specific aging management review and (2) the form of this aging management review.

Under the screening of systems, structures, and components that must be further reviewed, the proposed amendment effectively narrows the scope of systems, structures, and components subject to an aging management review. In general, the current rule contains a definition of ARDUTLR that would cause many systems, structures, and components to require further aging management review but would allow existing licensee programs and activities (including the maintenance rule) to

serve as a basis for concluding that ARDUTLR will be adequately managed in the period of extended operation. The proposed amendment would retain the screening of systems, structures, and components but would reduce the scope of systems, structures, and components requiring review to a narrowly defined group based on an NRC determination in this rulemaking of the effectiveness of current licensee programs and NRC requirements that will continue into the period of extended operation. Because the proposed amendment has essentially the same results with respect to management of aging effects in the period of extended operation as the current rule, but provides a more efficient process to achieve these results, the environmental impacts of the proposed amendment would be similar to those under the current rule.

With respect to the form of the aging management review, the proposed rule would establish a clear focus on managing the functionality of systems, structures, and components in the face of detrimental aging effects as opposed to identification and mitigation of aging mechanisms. The Commission has concluded that the focus on identification of aging mechanisms is not necessary because regardless of the aging mechanism, only those that lead to degraded component performance or condition (i.e., potential loss of functionality) are of concern. Therefore, the Commission has concluded that an aging management review that seeks to ensure a component's functionality is a more efficient and appropriate review. This change only improves the efficiency of the licensee's aging management review. Therefore, the environmental impacts would be similar to those under the current rule.

The ultimate licensee actions to manage aging in the renewal term under the proposed rule are expected to be similar to those under the current rule. However, the required aging management activities will be arrived at more efficiently under the proposed rule. Therefore, the environmental impact of relicensing under the proposed rule would be similar to that for relicensing under the current rule. It should be noted, however, that under the proposed rule an applicant need not include a projection of future aging effects and any corresponding mitigation activities (major refurbishment or other plant changes) for the renewal period. Instead, the focus is on assuring that programs are in place to identify and mitigate aging effects as they occur. As a result, this environmental assessment was limited to licensee activities required to put in place any relevant aging management programs rather than a review of any future mitigation activities that may be required under these programs.

VII. Paperwork Reduction Act Statement

This proposed rule amends information collection requirements subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of the information collection requirements.

The public reporting burden for this collection of information is estimated to average 94,000 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0155), Office of Management and Budget, Washington, DC 20503.

VIII. Regulatory Analysis

The NRC has prepared a regulatory analysis of the values and impacts of the proposed rule and of a set of significant alternatives. The regulatory analysis has been placed in the Commission's public document room for review by interested members of the public. A summary of the findings and conclusion of the regulatory analysis are discussed below.

The specific objective of the proposed rule is to clarify the Commission's requirements for license renewal by providing greater reliance on the maintenance rule and other existing licensee activities and programs for purposes of license renewal.

The NRC staff has defined and evaluated a set of specific alternatives that cover a range of activities that would meet the objective. The alternatives were evaluated and compared in the regulatory analysis. The results of the regulatory analysis are summarized as follows:

Alternative 1: Implement existing rule using SECY-93-049 and SECY-93-113 as guidance.

Alternative 1 (the existing rule) requires an integrated plant assessment (IPA), which consists of screening plant systems, structures, and components that are important to license renewal (ITLR), identifying those structures and components that could be subject to age-related degradation unique to license renewal (ARDUTLR), and demonstrating that ARDUTLR would be managed during the period of extended operation. Systems, structures, and components with an aging assessment based on time-limited analyses corresponding to the current operating term (40 years) would be treated as having ARDUTLR. The IPA would be included in a FSAR supplement.

The existing rule requires the greatest expenditures for license renewal because it is not explicit regarding reliance on the maintenance rule and other existing licensee activities and programs for purposes of license renewal. The regulatory analysis of the existing rule was published in NUREG-1362 (December 1991).

Alternative 2: Amend the existing rule to focus on long-lived, passive structures and components and systems, structures, and components with time-limited analyses according to SECY-93-331 and the Commission's staff requirements memorandum (SRM) dated February 2, 1994.

Alternative 2 would contain an IPA framework similar to the existing rule but would be simplified, including the elimination of the terms ARDUTLR and ITLR. Most systems, structures, and components subject to the maintenance rule or other existing programs would require no further evaluation for license renewal. The focus of Alterative 2 is on long-lived, passive structures and components and those systems, structures, and components with time-limited aging analyses. Although the IPA would be a part of the application, Alternative 2 would only require that the results and conclusions of the IPA be included in an FSAR supplement.

This alternative would require fewer expenditures for license renewal and achieve a similar reduction in risk to the public health, as does the existing rule. The Commission has identified the focus of license renewal, that is, long-lived, passive structures and components and systems, structures, and components with time-limited aging analyses. The Commission has decided that other systems, structures, and components would continue to be managed by the current regulatory process, including the maintenance rule and existing programs and require no further evaluation for license renewal.

Alternative 3: Amend the existing rule to focus on systems, structures, and components with time-limited analyses according to the

NRC staff's ``Option 4'' discussed at the license renewal workshop (58 FR 42987; August 12, 1992).

Alternative 3 would rely on the current regulatory process, including the maintenance rule and other existing programs, to address aging. Alternative 3 would only require a reevaluation of aging based on time-limited analyses corresponding to 40 years. An extension of these analyses to the end of the period of extended operation, for example, 60 years, would be required. An IPA is not required and the existing FSAR updating requirements apply when a time-limited analysis described in the FSAR is revised.

This alternative would require the lowest renewal expenditures. Aging management of systems, structures, and components, except for those addressed by time-limited analyses, would be addressed by the current regulatory process. Alternative 3 has a potential increase in accident risk when compared with the existing rule. The risk increase results from the NRC staff's conservative assumption that aging management activities in response to future regulatory actions regarding long-lived, passive portions of systems, structures, and components are not included in the averted risk estimate for the period of extended operation. Although the NRC staff believes that the current regulatory process could address aging effects of systems, structures, and components during the period of extended operation, the extent of these future activities has not been determined.

Alternative 2 was chosen as the preferred alternative by the Commission. The reliance on the maintenance rule and other existing licensee activities and programs for purposes of license renewal, which is absent from Alternative 1, directly focuses on systems, structures, and components subject to license renewal review. The systematic aging assessment, which is absent from Alternative 3, is warranted for the period of extended operation because of the importance of long-lived, passive structures and components. Alternative 2 shows a significant positive net value while maintaining a similar level of public health and safety to the existing rule. An approach similar to Alternative 2, but retaining the term ARDUTLR, was endorsed by industry organizations that are actively involved

in license renewal activities. As future regulatory actions are implemented, the associated aging management activities could be considered for managing the effects of aging during the period of extended operation. If the Commission decides that the specific regulatory actions are adequate in maintaining the function of systems, structures, or components during the period of extended operation, the Commission may amend 10 CFR Part 54 to exclude that particular system, structure, or component from evaluation in a renewal application. IX. Regulatory Flexibility Act Certification As required by the Regulatory Flexibility Act of 1980, (5 U.S.C. 605 (b)), the Commission certifies that this proposed rule, if adopted, would not have a significant economic impact upon a substantial number of small entities. The proposed rule sets forth the application procedures and the technical requirements for renewed operating licenses for nuclear power plants. Nuclear power plant licensees do not fall within the definition of small businesses as defined in Section 3 of the Small Business Act, 15 U.S.C., 632, the Small Business Size Standards of the Small Business Administration (13 CFR Part 121), or the Commission's Size Standards (56 FR 56671; November 6, 1991). Therefore, this proposed rule does

not fall within the purview of the Act. X. Non-Applicability of the Backfit Rule This proposed rule, like the original license renewal rule, addresses the procedural and technical requirements for obtaining a renewed operating license for nuclear power plants. Although the proposed amendment constitutes a change to an existing regulation, the NRC

has determined that the backfit rule, 10 CFR 50.109, does not apply because the proposed amendment only affects prospective applicants for license renewal. The primary impetus for the backfit rule was ``regulatory stability.'' Once the Commission decides to issue a license, the terms and conditions for operating under that license would not be changed arbitrarily post hoc. As the Commission expressed in the preamble for 10 CFR Part 52, which prospectively changed the requirements for receiving design certifications, the backfit rule-- [W]as not intended to apply to every regulatory action which changes settled expectations. Clearly, the backfit rule would not apply to a rule which imposed more stringent requirements on all future

applicants for construction permits, even though such a rule might arguably have an adverse impact on a person who was considering applying for a permit but had not done so yet. In this latter case, the backfit rule protects the construction permit holder, but not the perspective applicant, or even the present applicant. (54 FR 15385-86; April 18, 1989). Regulatory stability is not a relevant issue with respect to this proposed rule. There are no licensees currently holding renewed nuclear power plant operating licenses who would be affected by this rule. No applications for license renewal have been docketed. It is also unlikely that any license renewal application will be submitted before the proposed rule becomes effective because of implementation difficulties with the existing 10 CFR Part 54 rule. Consequently, there are no valid

licensee or applicant expectations that may be changed regarding the terms and conditions for obtaining a renewed operating license. Accordingly, this proposed rule does not constitute a ``backfit'' as defined in 10 CFR 50.109(a)(1). Furthermore, one reason the Commission is proposing to amend 10 CFR Part 54 is because of the concerns of nuclear power plant licensees who are dissatisfied with the current requirements in 10

CFR Part 54 and have urged the Commission to modify the rule to address their concerns. Under this circumstance, the policy objective of the backfit rule would not be served by undertaking a backfit analysis. Regulatory and technical alternatives for addressing the conc with the current 10 CFR Part 54 are being analyzed and considered in the regulatory analysis that has been prepared for this proposed rule. Preparation of a separate backfit statement would not provide any substantial additional benefit. Therefore, the Commission has determined that a

backfit analysis pursuant to 10 CFR 50.109 need not be prepared

for this proposed rule. List of Subjects 10 CFR Part 2 Administrative practice and procedure, Antitrust, Byproduct material, Classified

information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal. 10 CFR Part 51 Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping req CFR Part 54 Administrative practice and procedure, Aging, Effects of aging, Time-limited aging analyses, Backfitting, Classified information, Criminal penalties, Env Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the Commission is proposing to adopt the following amendments to

10 CFR Parts 2, 51, and 54. PART 2--RULES OF PRACTICE FOR DOMESTIC LICENSING PROCEEDINGS 1. The authority citation for Part 2 is revised to read as follows: Authority: Secs. 161, 181, 68 Stat. 948, 953, as amended (42 U.S.C. 2201, 2231); sec. 191, as amended, Pub. L. 87-615, 76 Stat. 409 (42 U.S.C. 2241); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841); 5 U.S.C. 552. Section 2.101 also issued under secs. 53, 62, 63, 81, 103, 104, 105, 68 Stat. 930, 932, 933, 935, 936, 937, 938, as amended (42 U.S.C. 2073, 2092, 2093, 2111, 2133, 2134, 2135); sec. 114(f), Pub. L. 97-425, 96 Stat. 2213, as amended (42 U.S.C. 10134(f)); sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332); sec. 301, 88 Stat. 1248 (42 U.S.C. 5871). Sections 2.102, 2.103, 2.104, 2.105, 2.721 also issued under secs. 102, 103, 104, 105, 183, 189, 68 Stat. 936, 937, 938, 954, 955, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2233, 2239). Section 2.105 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Sections

2.200-2.206 also issued under secs. 161b, i, o, 182, 186, 234, 68 Stat. 948-951, 955, 83 Stat. 444, as amended (42 U.S.C. 2201(b), (i), (o), 2236, 2282); sec. 206, 88 Stat. 1246 (42 U.S.C. 5846). Sections 2.600-2.606 also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332). Sections 2.700a, 2.719 also issued under 5 U.S.C. 554. Sections 2.754, 2.760, 2.770, 2.780, also issued under 5 U.S.C. 557. Section 2.764 and Table 1A of Appendix C are also issued under secs. 135, 141, Pub. L.

97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 2.790 also issued under sec. 103, 68 Stat. 936, as amended (42 U.S.C. 2133) and 5 U.S.C. 552. Sections 2.800 and 2.808 also issued under 5 U.S.C. 553. Section 2.809 also issued under 5 U.S.C. 553 and sec. 29, Pub. L. 85-256, 71 Stat. 579, as amended (42 U.S.C. 2039). Subpart K also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat.

2230 (42 U.S.C. 10154). Subpart L also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239). Appendix A also issued under sec. 6, Pub. L. 91-560, 84 Stat. 1473 (42 U.S.C. 2135). Appendix B also issued under sec. 10, Pub. L. 99-240, 99 Stat. 1842 (42 U.S.C. 2021b et seq.). 2. In Sec. 2.758, paragraphs (b) and (e) are revised to read as follows:

Sec. 2.758 Consideration of Commission rules and regulations in adjudicatory proceedings. * * * * * (b) A party to an adjudicatory proceeding involving initial or renewal licensing subject to this subpart may petition that the application of a specified Commission rule or regulation or any provision thereof, of the type described in paragraph (a) of this section, be waived or an exception made for the particular

proceeding. The sole ground for petition for waiver or exception shall be that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted. The petition shall be accompanied by an affidavit that identifies the specific aspect or aspects of the subject matter of the proceeding as to which

the application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted, and shall set forth with particularity the special circumstances alleged to justify the waiver or exception requested. Any other party may file a response thereto, by counteraffidavit or otherwise. * * * * *

(e) Whether or not the procedure in paragraph (b) of this section is available, a party to an initial or renewal licensing proceeding may file a petition for rulemaking pursuant to Sec. 2.802. PART 51--ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULATORY FUNCTIONS 3. The authority citation for Part 51 continues to read as follows: Authority: Sec. 161, 68 Stat. 948, as amended (42 U.S.C. 2201); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842). Subpart A also issued under National Environmental Policy Act of 1969, secs. 102, 104, 105,

83 Stat. 853- 854, as amended (42 U.S.C. 4332, 4334, 4335); and Pub. L. 95-604, Title II, 92 Stat. 3033-3041; and sec. 193, Pub. L. 101-575, 104 Stat. 2835 42 U.S.C. 2243). Sections 51.20, 51.30, 51.60, 51.61, 51.80, and 51.97 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241, and sec. 148, Pub. L. 100-203, 101 Stat. 1330- 223 (42 U.S.C. 10155, 10161, 10168). Section 51.22 also issued under sec. 274, 73 Stat. 688, as amended by 92 Stat. 3036-3038 (42 U.S.C. 2021) and under Nuclear Waste Policy Act of 1982, sec. 121, 96 Stat. 2228 (42 U.S.C. 10141). Sections 51.43, 51.67, and 51.109 also under Nuclear Waste Policy Act of 1982, sec. 114(f), 96 Stat. 2216, as amended (42 U.S.C. 10134(f)). 4. In Sec. 51.22, paragraph (c)(3) is revised to read as follows: Sec. 51.22 Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review. * * * * * (c) * * * (3)

Amendments to Parts 20, 30, 31, 32, 33, 34, 35, 39, 40, 50, 51, 54, 60, 61, 70, 71, 72, 73, 74, 81 and 100

of this chapter which relate to-- (i) Procedures for filing and reviewing applications for licenses or construction permits or other forms of permission or for amendments to or renewals of licenses or construction permits or other forms of permission; (ii) Recordkeeping requirements; or (iii) Reporting requirements; and (iv) Actions on petitions for rulemaking relating to these amendments. * * * * *

5. Part 54 is revised to read as follows:

PART 54--REQUIREMENTS FOR RENEWAL OF OPERATING LICENSES FOR NUCLEAR POWER PLANTS General Provisions Sec. 54.1 Purpose. 54.3 Definitions. 54.4 Scope. 54.5 Interpretations. 54.7 Written communications. 54.9 Information collection requirements: OMB approval. 54.11 Public inspection of applications. 54.13 Completeness and accuracy of information. 54.15 Specific exemptions. 54.17 Filing of application. 54.19 Contents of application--general information. 54. Contents of application--technical information. 54.22 Contents of application--technical specifi of application--environmental information. 54.25 Report of the Advisory Committee on Reactor Safeguards. 54.27 Hearings. 54.29 Standards for issuance of a renewed license. 54.31 Issuance of a renewed license. 54.33 Continuation of CLB and conditions of renewed license. 54.35 Requirements during term of renewed license. 54.37 Additional records and recordkeeping requirements. 54.41 Violations. 54.43 Criminal penalties. Authority: Secs. 102, 103, 104, 161, 181, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955,

as amended, sec. 234, 83 Stat. 1244, as amended
(42 U.S.C. 2132, 2133,
    2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282);
secs. 201, 202, 206, 88 Stat. 1242, 1244, as amended
(42 U.S.C. 5841, 5842). Sec. 54.1 Purpose. This part governs
the issuance of renewed operating licenses for
    nuclear power plants licensed pursuant to Sections 103 or 104b
of the Atomic Energy Act of 1954, as amended (68 Stat.
919), and Title II
    of the Energy Reorganization Act of 1974 (88 Stat.
1242). Sec. 54.3 Definitions. (a) As used in this part, Current licensing
basis (CLB) is the set of NRC requirements applicable to a
specific plant and a licensee's written commitments for ensuring
    compliance with and operation within applicable NRC requirements and the plant-specific desi
basis (including all modifications and additions to such commitments over the
life of the license) that are docketed and in effect. The
CLB includes the NRC regulations contained in 10 CFR parts 2, 19,
    20, 21, 26, 30, 40, 50, 51, 54, 55,
70, 72, 73, 100 and appendices thereto; orders; license
conditions; exemptions; and technical specifications. It
    also includes the plant-specific design-basis information defined in
10 CFR 50.2 as documented in the most
recent final safety analysis report (FSAR) as required by 10 CFR
50.71 and the licensee's commitments remaining in effect that
were made in docketed licensing correspondence such
as licensee responses to NRC bulletins, generic letters, and
enforcement actions, as well as licensee commitments documented
    in NRC safety evaluations or licensee event reports. Integrated plant assessment
(IPA) is a licensee assessment that demonstrates that
a nuclear power plant facility's structures and components requiring aging management
review in accordance with Sec. 54.21(a) for license renewal have
been identified and that the effects of aging on
the functionality of such structures and components will
be managed to maintain the CLB such that there is
an acceptable level of safety during the period of extended operation.
Nuclear power plant means a nuclear power facility of a
type described in
    10 CFR 50.21(b) or 50.22. Time-limited aging analyses, for
the purposes of this part, are those licensee calculations and analyses
that form the basis for a licensee conclusion regarding
the capability of systems, structures, and components within the
scope of this part to perform their intended function(s) that-- (1)
Consider the effects of aging; and (2)
Are based on explicit assumptions defined by the
current operating term of the plant. (b) All other terms
in this part have the same meanings as set out in
10 CFR 50.2 or Section
    11 of the Atomic Energy Act, as applicable. Sec.
54.4 Scope. (a) Plant systems, structures, and components
within the scope of this part are: (1) Safety-related systems, structures,
and components which are those relied upon to
remain functional during and following design- basis events (as defined
in 10 CFR 50.49 (b)(1)) to ensure the following
functions-- (i) The integrity of the reactor
coolant pressure boundary; (ii) The capability to shut down the reactor
and maintain it in a safe shutdown condition;
or (iii) The capability to prevent or mitigate the
consequences of accidents that could result in potential
offsite exposure comparable to the 10 CFR Part 100 guidelines. (2) All
nonsafety-related systems, structures, and components whose failure could prevent

satisfactory accomplishment of any of the functions identified in paragraphs (a)(1) (i), (ii), or (iii) of
this section. (3) All systems, structures, and components relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for fire protection (10 CFR 50.48), environmental qualification (10 CFR 50.49), pressurized thermal shock (10 CFR 50.61), anticipated transients without scram (10 CFR 50.62), and station blackout (10 CFR 50.63). (b) The intended functions that these systems, structures, and components must be shown to fulfill in Sec. 54.21 are those functions that are the bases
for including them within the scope of license renewal as specified in paragraphs (a) (1) through (3) of this section. Sec. 54.5 Interpretations. Except as specifically authorized by the Commission in writing, no interpretation of the meaning of the regulations in this part by any officer or employee of the Commission other than a written interpretation by the General Counsel will be recognized to be binding upon the Commission. Sec. 54.7 Written communications. All applications, correspondence, reports, and other written communications shall be filed in accordance with applicable portions of 10 CFR 50.4. Sec. 54.9 Information collection requirements: OMB approval. (a) The Nuclear Regulatory Commission has sub the information collection requirements contained in this part to the Office of Management and Budget (OMB) for approval as required by the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). OMB has approved the information collection requirements contained in this part under control number XXXX-XXXX. (b) The approved information collection requirements contained in this part appear in Secs. 54.13, 54.17, 54.19, 54.21, 54.22, 54.23, and 54.37. Sec. 54.11 Public inspection of applications. Applications and documents submitted to the Commission in connection with renewal applications may be made available for public
inspection in accordance with the provisions of the regulations contained in 10 CFR Part 2. Sec. 54.13 Completeness and accuracy of information. (a) Information provided to the Commission by an applicant for a renewed license or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant must be complete and accurate
in all material respects. (b) Each applicant shall notify the Commission of information identified by the applicant as having for the regulated activity a significant implication for public health and safety or common defense and security. An applicant violates this paragraph only if the applicant fails to notify the Commission of information that the applicant has identified as having a significant implication for public health and safety or common defense and security. Notification must be provided to the Administrator of the appropriate regional office within 2 working days of identifying the information. This requirement is not applicable to information that is already required to be provided to the Commission by other reporting or updating requirements. Sec. 54.15 Specific exemptions. Exemptions from the requirements of this part may be granted by the Commission in accordance with 10 CFR 50.12. Sec. 54.17 Filing of application. (a) The filing of an application for a renewed license must be in accordance with
Subpart A of 10 CFR Part 2 and 10 CFR 50.4 and 50.30. (b) Any person who is a citizen,

national, or agent of a foreign country, or any corporation, or other entity which the Commission knows or has reason to know is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government, is ineligible to apply for and obtain a renewed license. (c) An application for a renewed license may not be submitted to the Commission earlier than 20 years before the expiration of the operating license currently in effect. (d) An applicant may combine an application for a renewed license with applications for other kinds of licenses. (e) An application may incorporate by reference information contained in previous applications for licenses or license amendments, statements, correspondence, or reports filed with the Commission, provided that the references a and specific. (f) If the

application contains Restricted Data or other defense

information, it must be prepared in such a manner that all Restricted Data and other defense information are separated from unclassified information in accordance with 10 CFR 50.33(j). (g) As part of its application and in any event prior to the receipt of Restricted Data or the issuance of a renewed license, the applicant shall agree in writing that it will not permit any individual to have access to Restricted Data until an investigation is made and reported to the Commission on the character, association, and loyalty of the individual and the Commission shall have determined that permitting such persons to have access to Restricted Data will not endanger the common defense and security. The agreement of the applicant in this regard is part of the renewed license, whether so stated or not. Sec. 54.19 Contents of application--general information. (a) Each application must provide the information specified in 10 CFR 50.33(a) through (e), (h), and (i). Alternatively, the application may incorporate by reference other documents that provide the information required by this section. (b) Each application must include conforming changes to the standard indemnity agreement, 10 CFR 140.92, Appendix B, to account for the expiration term of the proposed renewed license. Sec. 54.21 Contents of application--technical information. Each application must contain the following information: (a) An integrated plant assessment (IPA). The IPA must: (1) For those systems, structures, and components within the scope of this part, as delineated in Sec. 54.4, identify and list those structures and components subject to an aging management review. Structures and components subject to an aging management review shall encompass those structures and components-- (i) That perform an intended function, as described in Sec. 54.4, without moving parts or without a change in configuration or properties. These structures and components include, but are not limited to, pressure retaining boundaries, component supports, reactor coolant pressure boundaries, the reactor vessel, core support structures, containment, seismic Category I structures, electri cables and connections, and electrical penetrations, excluding, but not limited to, pumps (except casing), valves (except body), motors, batteries, relays, breakers, and transistors; and (ii) That are not subject to replacement based on a qualified life or specified time period. (2) Describe and justify the methods used in paragraph (a)(1) of this section. (3) For each structure and component identified in paragraph (a)(1)

of this section, demonstrate that the effects of aging will be managed so that the intended function(s) will be maintained for the period of extended operation. (b) CLB changes during NRC review of application. Each year following submittal of the license renewal application and at least 3 months before scheduled completion of the NRC review, an amendment to the renewal application must be submitted that identifies any change to the CLB of the facility that materially affects the contents of the license renewal application, including the FSAR supplement. (c) An evaluation of time-limited aging analyses. (1) A list of time-limited aging analyses, as defined in Sec. 54.3, must be provided. The applicant shall demonstrate that-- (i) The analyses remain valid for the period of extended operation; (ii) The analyses have been projected to the end of the period of extended operation; or (iii) The effects of aging on the intended function(s) will be adequately managed for the period of extended operation. (2) A list must be provided of all plant-specific exemptions granted pursuant to 10 CFR 50.12. For exemptions that are based on time-limited aging analyses as defined in Sec. 54.3, the applicant shall provide an evaluation that justifies the continuation of these exemptions for the period of extended operation. (d) An FSAR supplement. The FSAR supplement for the facility must contain a summary description of the programs and activities for managing the effects of aging and the evaluation of time-limited aging analyses for the period of extended operation determined by paragraphs (a) and (c) of this section, respectively. Sec. 54.22 Contents of application--technical specifications. Each application must include any technical specification changes or additions necessary to manage the effects of aging during the period of extended operation as part of the renewal application. The technical justification for these changes or additions must be contained in the FSAR supplement submitted to support license renewal. Sec. 54.23 Contents of application--environmental information. Each application must include an environmental report that complies with the requirements of Subpart A of 10 CFR Part 51. Sec. 54.25 Report of the Advisory Committee on Reactor Safeguards. Each renewal application will be referred to the Advisory Committee on Reactor Safeguards for a review and report. Any report will be made part of the record of the application and made available to the public, except to the extent that security classification prevents disclosure. Sec. 54.27 Hearings. A notice of an opportunity for a hearing will be published in the Federal Register in accordance with 10 CFR 2.105. In the absence of a request for a hearing filed within 30 days by a person whose interest may be affected, the Commission may issue a renewed operating license without a hearing upon 30-day notice and publication once in the Federal Register of its intent to do so. Sec. 54.29 Standards for issuance of a renewed license. (a) A renewed license may be issued by the Commission up to the full term authorized by Sec. 54.31 based on the following findings: (1)(i) Actions have been identified and have been or will be taken with respect to-- (A) Managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review in accordance with Sec. 54.21(a)(1); and (B) Evaluating time-limited aging analyses that have been identified to

require review in accordance with Sec. 54.21(c); (ii) Such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB and that any changes made to the plant's CLB in order to comply with this paragraph are otherwise in accord with the Act and the Commission's regulations. (2) Any applicable requirements of Subpart A of 10 CFR Part 51 have been satisfied. (3) Any matters raised under Sec. 2.758 have been addressed. (b) The licensee shall comply with the requirements specified in paragraph (c) of this section if the reviews required by Sec. 54.21 show that either: (1) Aging will cause a loss of function of those structures or components that are reviewed in Sec. 54.21(a)(3) so that there is not reasonable assurance during the current license term that licensed activities will be conducted in accordance with the CLB; or (2) The time-limited aging analyses reviewed in Sec. 54.21(c) are not sufficient to provide reasonable assurance during the current license term that licensed activities will be conducted in accordance with the CLB. (c) As determined by paragraph (b) of this section, the licensee shall take measures under its current license to ensure that the intended function of those systems, structures, or components will be maintained in accordance with the CLB throughout the term of the current license. The adequacy of the measures for the term of the current license shall not be subject to challenge as a part of the renewal review or hearing under Part 54, but may be raised in a petition filed under 10 CFR 2.206. Sec. 54.31 Issuance of a renewed license. (a) A renewed license will be of the class for which the operating license currently in effect was issued. (b) A renewed license will be issued for a fixed period of time, which is the sum of the additional amount of time beyond the expiration of the operating license (not to exceed 20 years) that is requested in a renewal application plus the remaining number of years on the operating license currently in effect. The term of any renewed license may not exceed 40 years. (c) A renewed license will become effective immediately upon its issuance, thereby superseding the operating license previously in effect. If a renewed license is subsequently set aside upon further administrative or judicial appeal, the operating license previously in effect will be reinstated unless its term has expired and the renewal application was not filed in a timely manner. (d) A renewed license may be subsequently renewed in accordance with all applicable requirements. Sec. 54.33 Continuation of CLB and conditions of renewed license. (a) Whether stated therein or not, each renewed license will contain and otherwise be subject to the conditions set forth in 10 CFR 50.54. (b) Each renewed license will be issued in such form and contain such conditions and limitations, including technical specifications, as the Commission deems appropriate and necessary to help ensure that systems, structures, and components subject to review in accordance with Sec. 54.21 will continue to perform their intended functions for the period of extended operation.

In addition, the renewed license will be issued in such form and contain such conditions and limitations as

the Commission deems appropriate and necessary to help ensure that systems, structures, and components associated with any time-limited aging analyses will continue to perform their intended functions for the period of extended operation. (c) Each renewed license will include those conditions to protect the environment that were imposed pursuant to 10 CFR 50.36(b) and that are part of the CLB for the facility at the time of issuance of the renewed license. These conditions may be supplemented or amended as necessary to protect the environment during the term of the renewed license and will be derived from information contained in the supplement to the environmental report submitted pursuant to 10 CFR Part 51, as analyzed and evaluated in the NRC record of decision. The conditions will identify the obligations of the licensee in the environmental area, including, as appropriate, requirements for reporting and recordkeeping of environmental data and any conditions and monitoring requirements for the protection of the nonaquatic environment. (d) The licensing basis for the renewed license includes the CLB, as defined in Sec. 54.3(a); the inclusion in the licensing basis of matters such as licensee commitments does not change the legal status of those matters unless specifically so ordered pursuant to paragraph (b) or (c) of this section. Sec. 54.35 Requirements during term of renewed license. During the term of a renewed license, licensees shall be subject to and shall continue to comply with all Commission regulations contained in 10 CFR Parts 2, 19, 20, 21, 26, 30, 40, 50, 51, 54, 55, 70, 72, 73, and 100, and the appendices to these parts that are applicable to holders of operating licenses. Sec. 54.37 Additional records and recordkeeping requirements. (a) The licensee shall retain in an auditable and retrievable form for the term of the renewed operating license all information and documentation required by, or otherwise necessary to document compliance with, the provisions of this part. (b) After the renewed license is issued, the FSAR update required by 10 CFR 50.71(e) must include any systems, structures, and components newly identified that would have been subject to an aging management review or evaluation of time-limited aging analyses in accordance with Sec. 54.21. This FSAR update must describe how the effects of aging will be managed such that the intended function(s) in Sec. 54.4(b) will be effectively maintained during the period of extended operation. Sec. 54.41 Violations. (a) The Commission may obtain an injunction or other court order to prevent a violation of the provisions of the following Acts: (1) The Atomic Energy Act of 1954, as amended. (2) Title II of the Energy Reorganization Act of 1974, as amended or (3) A regulation or order issued pursuant to those Acts. (b) The Commission may obtain a court order for the payment of a civil penalty imposed under section 234 of the Atomic Energy Act: (1) For violations of the following-- (i) Sections 53, 57, 62, 63, 81, 82, 101, 103, 104, 107, or 109 of the Atomic Energy Act of 1954, as amended; (ii) Section 206 of the Energy Reorganization Act; (iii) Any rule, regulation, or order issued pursuant to the sections specified in paragraph (b)(1)(i) of this section; (iv) Any term, condition, or limitation of any license issued under the sections specified in paragraph (b)(1)(i) of

this section. (2) For any violation for which a license may be revoked under Section 186 of the Atomic Energy Act of 1954, as amended. Sec. 54.43 Criminal penalties. (a) Section 223 of the Atomic Energy Act of 1954, as amended, provides for criminal sanctions for willful violations of, attempted violation of, or conspiracy to violate, any regulation issued under sections 161b, 161i, or 161o of the Act. For purposes of section 223, all the regulations in Part 54 are issued under one or more of sections 161b, 161i, or 161o, except for the sections listed in paragraph (b) of this section. (b) The regulations in Part 54 that are not issued under sections 161b, 161i, or 161o for the purposes of section 223 are as follows: Secs. 54.1, 54.3, 54.4, 54.5, 54.7, 54.9, 54.11, 54.15, 54.17, 54.19, 54.21, 54.22, 54.23, 54.25, 54.27, 54.29, 54.31, 54.41, and 54.43. Dated at Rockville, Maryland, this 1st day of September, 1994. For the Nuclear Regulatory Commission. John C. Hoyle, Acting Secretary of the Commission. [FR Doc. 94-22086 Filed 9-8-94; 8:45 am] BILLING CODE 7590-01-P